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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON

IN THE MATTER OF: Rhone-Poulenc Inc. (now know as Bayer CropScience Inc.) Rhodia Inc. Container Properties, L.L.C. Marginal Way Facility Seattle, Washington (WAD009282302) Respondent Proceeding Under Section 3008(h) of the Solid Waste Disposal Act, commonly known as the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6928(h)	U.S. EPA Docket No. 1091-11-20-3008(h)

SECOND AMENDMENT TO
ADMINISTRATIVE ORDER ON CONSENT
FOR CORRECTIVE ACTION

1. This Second Amendment modifies the Administrative Order on Consent, No. 1091-11-20-3008(h) ("Consent Order") for Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility ("Facility") in Seattle, Washington, pursuant to Section XXIV of the Consent Order (Modification).

2. The following entities are liable parties pursuant to the Consent Order, originally executed May 6, 1993, and first amended February 17, 1999: Container Properties, L.L.C., Rhodia Inc., and all successors to Rhone-Poulenc Inc., including but not limited to Bayer CropScience Inc. These liable parties are jointly and severally "Respondent" under the Consent Order with the United States Environmental Protection Agency ("U.S. EPA").

3. The Consent Order requires Respondent to maintain financial security in the amount of $7 million.

4. Currently the financial security required by the Consent Order is in the form of a trust fund.

5. Respondent submitted an Interim Measures Construction Work Plan in response to the U.S. EPA's March 13, 2000 Request for an Interim Measures Workplan pursuant to Paragraphs 6.4, 6.5, and 6.6 of the Consent Order. The U.S. EPA conditionally approved the Interim Measures Construction Work Plan on December 4, 2002 ("IM Work Plan"). Preparation and implementation of the IM Work Plan has been estimated to cost approximately $ 3.5 million according to the Detailed Cost Estimate for Hydraulic Control Interim Measures and Final Corrective Action dated July 25, 2002, and prepared by Respondent.

6. Respondent and the U.S. EPA have agreed that financial security under the Consent Order may be reduced by the amount to be spent by Respondent on the interim measure described in the IM Work Plan in the amount of $3.5 million, under the following conditions:

a. The financial security will be released in the amount of $3.5 million upon confirmation by U.S. EPA that on-site physical construction of the Interim Measure has commenced; and

b. Unless Respondent withdraws its consent to implement the Corrective Measure in accordance with Paragraphs 6.27, 6.28, 6.29, and 18.6 of the Consent Order, Respondent agrees to establish and maintain sufficient financial security to cover the full estimate for the final remedy or corrective measure selected by the U.S. EPA after completion of the Corrective Measures Study.

7. In addition, Respondent and the U.S. EPA agree to amend the Consent Order to include a process for increasing or reducing the financial security in the future without a formal amendment of the Consent Order.

8. In order to reflect these modifications, and to clarify the term "Respondent" the following changes are hereby made to the Consent Order:[1]

The definition of the term "Respondent" as defined on page 7, Paragraph 33 of the Consent

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[1]Additions are marked by redline, deletions are marked by ~~strikeout~~.

Order is modified as follows:

Respondent shall mean Rhone-Poulenc Inc. ~~(now known as Rhone-Poulenc Ag Company Inc.)~~ ("RPI") jointly and severally with Bayer CropScience Inc., Rhodia Inc. and Container Properties, L.L.C.

Paragraph 1.2 of the Consent Order:

1.2 This Consent Order is issued jointly and severally to Rhone-Poulenc Inc., ~~now known as Rhone-Poulenc Ag Company Inc.,~~ ("RPI"), Bayer CropScience Inc., ~~and~~ Rhodia Inc., ~~former owners and former controlling entities,~~ and Container Properties, L.L.C., the current owner and controlling entity of the former RPI facility located at 9229 East Marginal Way South, Tukwila, Washington (RPI, Bayer CropScience Inc., Rhodia Inc. and Container Properties, L.L.C. are herein referred to jointly and severally as "Respondent").

Section XXIII (Financial Responsibility):

23.3 Each financial instrument obtained pursuant to this Section must be established and used solely for the purpose of conducting the activities required by this Consent Order at and for this Facility. Each financial instrument submitted to U.S. EPA for approval pursuant to this Section shall satisfy the requirements for financial assurance instruments for closure specified at 40 C.F.R. § 264.151, except that references to closure and closure regulatory requirements shall be revised to refer to the Work required by this Consent Order. Each financial assurance instrument established and maintained by Respondent in accordance with this Section must allow the funds provided by the financial assurance to be available in the event that Respondent proves unable or unwilling to undertake any actions prescribed in this Consent Order while it is in effect so that the activities covered by the instrument may be completed by Respondent, U.S. EPA or others, as determined by U.S. EPA. The phrase "actions prescribed in this Consent Order" as used in the previous sentence does not include the Corrective Measure Implementation ("CMI") in the event that Respondent

withdraws its consent to implement the Corrective Measure in accordance with Paragraph 6.27, 6.28, 6.29, and 18.6.

23.4 **Reduction of Financial Assurance for Interim Measures Work** - U.S. EPA will direct the appropriate party to release $ 3.5 million to Respondent upon confirmation by U.S. EPA that on-site physical construction of the interim measure specified in the Interim Measures Construction Work Plan conditionally approved by U.S. EPA on December 4, 2002, has commenced.

23.5. Unless Respondent has withdrawn its consent to implement the Corrective Measure in accordance with Paragraph 6.27, 6.28, 6.29, and 18.6, Respondent must establish and maintain financial security sufficient to provide financial assurance for the CMI. Within thirty (30) days of U.S. EPA approval of the CMI Workplan, Respondent must submit to U.S. EPA for review and approval, a draft instrument in the form and manner specified in Paragraph 23.1 of this Section, for financial security in at least the amount of the U.S. EPA approved cost estimate for the selected Corrective Measure. Within ten (10) days of U.S. EPA approval of the financial instrument, Respondent shall establish financial security in accordance with U.S. EPA's approval.

23.6. In the event that U.S. EPA determines at any time that the financial security provided pursuant to this Section is inadequate to assure that the Work required by this Consent Order will be completed in a timely manner, Respondent shall, within thirty (30) days of receipt of notice of such determination by U.S. EPA, obtain and present to U.S. EPA for review and approval a draft instrument for an increased amount of financial security in the form and manner specified in Paragraph 23.1 of this Section. The phrase "Work required by this Consent Order" as used in the previous sentence does not include the CMI in the event that Respondent withdraws its consent to implement the Corrective Measure in accordance with Paragraph 6.27, 6.28, 6.29, and 18.6. Within ten (10) days of U.S. EPA approval of the financial instrument, Respondent shall establish financial security in accordance with U.S. EPA's approval.

23.7. The financial security required by this section must remain in force until U.S. EPA determines that the requirements of the Consent Order have been fully satisfied or in accordance

with Paragraph 23.8.

23.8. If Respondent can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in the financial assurance instrument(s), Respondent may, on any anniversary date of entry of this Consent Order, or at any other time agreed to by U.S. EPA, request a reduction of the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Respondent shall submit a written proposal for such reduction to U.S. EPA. Upon and in accordance with written approval by U.S. EPA, the amount of financial security may be reduced.

23.9. Respondent may change the form of financial assurance provided under this Section at any time, upon notice to and approval by U.S. EPA, provided that the new form of assurance meets the requirements of this Section.

9. This Second Amendment to the Administrative Order on Consent for Corrective Action is effective on the date signed by U.S. EPA, Region 10's Director of the Office of Waste and Chemicals Management.

10. This Second Amendment to the Administrative Order on Consent for Corrective Action may be signed in counterparts, and such counterpart signature pages shall be given full force and effect.

IT IS SO AGREED AND ORDERED

BY: _____ DATE: 7/22/03

Richard Albright, Director
Office of Waste and Chemicals Management
United States Environmental Protection
Agency, Region 10

The undersigned representative of a party to this Second Amendment to the Consent Order for a Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility, at 9229 East Marginal Way South, Seattle, Washington, certifies that he or she is fully authorized to enter into the terms and conditions of this Amendment and to execute and legally bind such party to this document.

FOR BAYER CROPSCIENCE INC. (SUCCESSOR TO RHONE-POULENC INC.):

BY: George S Goodridge DATE: July 18, 2003

Name: George S. Goodridge

Title: Assistant Secretary

Address [please type]:

2 T. W. Alexander Drive

Research Triangle Park, NC 27709

The undersigned representative of a party to this Second Amendment to the Consent Order for a Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility, at 9229 East Marginal Way South, Seattle, Washington, certifies that he or she is fully authorized to enter into the terms and conditions of this Amendment and to execute and legally bind such party to this document.

FOR RHODIA INC.:

BY: R. Robert Briggs DATE: July 21, 2003

Name [please type]: R. Robert Briggs

Title [please type]: Director, Manufacturing Services

Address [please type]: CN7500
Cranbury, NJ 08512-7500

The undersigned representative of party to this Second Amendment to the Consent Order for a Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility, at 9229 East Marginal Way South, Seattle, Washington, certifies that he or she is fully authorized to enter into the terms and conditions of this Amendment and to execute and legally bind such party to this document.

CONTAINER PROPERTIES, L.L.C.

BY: _____ DATE: July 18, 2003

Name [please type]: Mark W. Robison

Title [please type]: Member

Address [please type]: 22757 72nd Avenue South
Suite E106
Kent, WA 98043

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON

IN THE MATTER OF: Rhone-Poulenc Inc. (now known as Rhone-Poulenc Ag Company Inc.) Rhodia Inc. Container Properties, L.L.C. Marginal Way Facility Seattle, Washington (WAD009282302) Respondents Proceeding Under Section 3008(h) of the Solid Waste Disposal Act, commonly known as the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6928(h)	U.S. EPA Docket No. 1091-11-20-3008(h)

FIRST AMENDMENT TO
ADMINISTRATIVE ORDER ON CONSENT
FOR CORRECTIVE ACTION

1. This Amendment modifies the Administrative Order on Consent ("Consent Order") for Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility ("Facility") in Seattle, Washington, pursuant to Section XXIV of the Consent Order (Modification).

2. The Consent Order was entered into by the United States Environmental Protection Agency ("EPA") and Rhone-Poulenc Inc. on May 6, 1993.

3. On February 12, 1998, EPA received written notice that ownership of the Facility had been transferred to Rhodia Inc. In accordance with Paragraph 2.2 of the Consent Order, despite the change in ownership of the Facility, Rhone-Poulenc Inc. remains liable for the requirements of the Consent Order.

4. On July 13, 1998, the Facility was purchased by Container Properties, L.L.C.

5. As successor owners of the Facility, Rhodia Inc. and Container Properties, L.L.C. are

liable for the requirements of the Consent Order, in accordance with Paragraph 2.1 of the Consent Order.

6. In order to reflect the changes in ownership of the Facility, the following changes are hereby made to the Consent Order[1]:

Paragraph 1.2 of the Consent Order:

This Consent Order is issued jointly and severally to Rhone-Poulenc Inc., now known as Rhone-Poulenc Ag Company Inc., ("RPI"), ~~(Respondent),~~ and Rhodia Inc., former owners and former controlling entities, and Container Properties, L.L.C., the current owner and controlling entity of the former RPI facility located at 9229 East Marginal Way South, Tukwila, Washington (RPI, Rhodia Inc. and Container Properties, L.L.C. are herein referred to jointly and severally as "Respondent").

Paragraph 4.1 of the Consent Order:

Respondents RPI and Rhodia Inc. are the former owners and operators, and Respondent Container Properties L.L.C. is the current owner and operator of a hazardous waste facility. . .Washington. Until its closure in April, 1991, ~~Respondent~~ RPI engaged in the storage. . . .

The second sentence of Paragraph 4.2 of the Consent Order:

~~Respondent~~ RPI purchased the Facility in October of 1986, and operated the Facility until April of 1991, when the Facility ceased operations. On January 2, 1998, the Facility was transferred from RPI to Rhodia Inc. On July 13, 1998, Container Properties, L.L.C. purchased the Facility, and is currently operating the Facility.

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[1]Additions are marked by redline, deletions are marked by ~~strike-out~~.

The definition of the term "Respondent" as defined on page 7, Paragraph 33 of the Consent Order is modified as follows:

Respondent shall mean Rhone-Poulenc Inc. (now known as Rhone-Poulenc Ag Company Inc.) ("RPI"), Rhodia Inc. and Container Properties, L.L.C.

The heading for Paragraph 23.1 of Section XXIII (Financial Responsibility) of the Consent Order is retained and the text of that Paragraph is stricken and replaced with the following language:

Within thirty (30) days of entry of this Consent Order, Respondent shall establish and maintain financial security in the amount of $ 7 million. The mechanism(s) for obtaining and demonstrating financial assurance for corrective action must be one of the forms and in the manner specified in Paragraphs (a) through (f) of 40 C.F.R. § 265.143. Respondent shall submit documentation, as described in Paragraphs (a) through (f) of 40 C.F.R. § 265.143, of such financial assurance to EPA within seven (7) days after establishment of the financial assurance.

The first two sentences of Paragraph 23.2 beginning on line 11 and ending on line 20 are stricken. The last two sentences of Paragraph 23.2 remain unchanged.

7. The parties agree that one Project Coordinator will represent all companies subject to the Consent Order.

8. This First Amendment to the Administrative Order on Consent for Corrective Action is effective on the date signed by EPA, Region 10's Director of the Office of Waste and Chemicals Management.

IT IS SO AGREED AND ORDERED

BY: _____ DATE: 2-17-99

Michael A. Bussell, Director
Office of Waste and Chemicals Management
United States Environmental Protection Agency, Region 10

The undersigned representative of party to this First Amendment to the Consent Order for a Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility, at 9229 East Marginal Way South, Seattle, Washington, certifies that he or she is fully authorized to enter into the terms and conditions of this Amendment and to execute and legally bind such party to this document.

CONTAINER PROPERTIES, L.L.C.

BY: _____ DATE: 02/11/99

Name [please type]: Richard J. Padden

Title [please type]: Member

Address [please type]: 1216 - 14th Court East
Sumner, WA 98390

The undersigned representative of a party to this First Amendment to the Consent Order for a Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility, at 9229 East Marginal Way South, Seattle, Washington, certifies that he or she is fully authorized to enter into the terms and conditions of this Amendment and to execute and legally bind such party to this document.

FOR RHONE POULENC AG COMPANY INC. (FORMERLY RHONE-POULENC INC.):

BY: John M. Iatesta DATE: February 12, 1999

Name [please type]: John M. Iatesta

Title [please type]: Assistant Secretary

Address [please type]: CN7500
Cranbury, NJ 08512-7500

The undersigned representative of a party to this First Amendment to the Consent Order for a Corrective Action Activities at the former Rhone-Poulenc Inc. Marginal Way Facility, at 9229 East Marginal Way South, Seattle, Washington, certifies that he or she is fully authorized to enter into the terms and conditions of this Amendment and to execute and legally bind such party to this document.

FOR RHODIA INC.:

BY: _____ DATE: February 12, 1999

Name [please type]: John P. Donahue

Title [please type]: Senior Vice President, General Counsel & Secretary

Address [please type]: CN7500
Cranbury, NJ 08512-7500

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10, 1200 SIXTH AVENUE
SEATTLE, WASHINGTON

IN THE MATTER OF:	ADMINISTRATIVE ORDER ON CONSENT
Rhone-Poulenc, Inc., Marginal Way Facility, Seattle, Washington (WAD009282302),	U.S. EPA Docket No. 1091-11-20-3008(h)
Respondent	Proceeding under Section 3008(h) of the Resource Conservation and Recovery Act, 42 U.S.C. § 6928(h)

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ATTACHMENTS

A. DEFINITIONS

1. Act or RCRA shall mean the Resource Conservation and Recovery Act, as further amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. §§ 6901 et seq.

2. Additional work shall mean any activity or requirement that is not expressly or impliedly covered by this Consent Order or its attachments but is necessary to complete the purpose of this Consent Order as presented in the Purpose Section of this Consent Order.

3. Administrative Record shall mean the record compiled and maintained by U.S. EPA relative to this Consent Order. The Administrative Record may include, but is not limited to, information on the work performed and to be performed under this Consent Order, the factual findings supporting this Order, the selection of corrective measures for this facility, correspondence on the approval, disapproval or modification of work required of the Respondent and the existence and resolution of any dispute pursuant to the Dispute Resolution provisions of this Consent Order.

4. Area of Concern or AOC shall mean any area where a release to the environment of hazardous waste(s) or hazardous constituents has occurred, is suspected to have occurred, or may occur regardless of the frequency and duration of the release.

5. CERCLA shall mean the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, et seq.

6. Chemicals of Potential Concern shall mean chemicals that are potentially site-related and whose data are of sufficient quality for use in a quantitative risk assessment.

7. Comply, to comply, to be in compliance with, compliance may be used interchangeably and shall mean completion of an activity or requirement in the manner and time specified in this Consent Order, its attachments or written U.S. EPA directives. The Respondent must meet both the quality and timeliness components of a particular requirement to be considered to be in compliance with the terms and conditions of this Consent Order.

8. Corrective measure shall mean those actions or measures necessary to permanently control, prevent or mitigate the release or potential release of hazardous waste or hazardous constituents into the environment.

9. Corrective Measures Implementation or CMI shall mean those activities necessary to initiate, complete, monitor and maintain the remedies U.S. EPA may select or has selected to protect human health or the environment from the release or potential release of hazardous wastes, including hazardous constituents, into the environment from the facility. The activities required for the CMI are detailed in the CMI Scope of Work included as Attachment D.

10. Corrective Measures Study or CMS shall mean the investigation and evaluation of potential remedies which will protect human health and the environment from the release or potential release of hazardous wastes, including hazardous constituents, into the environment from the facility. The activities required for the CMS is detailed in the CMS Scope of Work included as Attachment C.

11. 1981 Dames & Moore Study and 1986 Dames & Moore Study shall mean the environmental assessments conducted in 1981 and 1986 by Dames & Moore Consultants on behalf of Respondent on the Facility, which U.S. EPA and RPI both possess and are familiar with.

12. Data Quality Objectives shall mean qualitative or quantitative statements specified to ensure that data of known and appropriate quality are obtained.

13. Day shall mean a calendar day unless expressly stated to be a working day. Working day shall mean a day other than a Saturday, Sunday, or Federal Holiday. In computing any period of time under this Consent Order, where the last day would fall on a Saturday, Sunday, or Federal Holiday, the period shall run until the end of the next working day.

14. Director shall mean the Director of the Hazardous Waste Division for the U.S. EPA Region 10, or his designee.

15. EPA or U.S. EPA shall mean the United States Environmental Protection Agency, Region 10 Office.

16. Facility or site shall mean all contiguous property under the control of the owner/operator subject to permit requirements under RCRA. This definition also applies to facilities implementing corrective action under RCRA Section 3008(h).

17. Hazardous Constituents shall mean those constituents listed in Appendix VIII to 40 C.F.R. Part 261 or any constituent identified in Appendix IX to 40 C.F.R. Part.264.

18. Hazardous Waste shall be as defined in Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), or 40 C.F.R. § 260.10.

19. Hazardous Waste Management Unit shall mean a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area.

20. Landau Report or Landau and Associates Site Assessment shall mean the environmental assessment conducted in 1991 on the Facility by Landau & Associates, which both U.S. EPA and RPI possess and are familiar with.

21. Innovative technologies shall mean those technologies for treatment of soil, sediment, sludge, and debris other than incineration, solidification/stabilization; and as those technologies for control of groundwater other than pumping with conventional treatment for groundwater.

22. Interim measures or IM shall mean those actions required in advance of selection of the final corrective action for a facility and which are necessary to expeditiously initiate clean-up actions at a site and control or eliminate the release or potential release of hazardous wastes or hazardous constituents at or from the facility.

23. Off-site, when used in relation to the facility or site, shall mean all areas which are not on-site.

24. On-site shall mean the same or geographically contiguous property within the Facility which may be divided by public or private right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along, the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access is also considered on-site property.

25. Operator shall mean the persons responsible for the overall operation of a facility.

26. Owner shall mean the person or persons who own(s) a facility or part of a facility.

27. Performance audit or QA/QC audit shall mean U.S. EPA's inspections or audits of laboratories used by the Respondent to evaluate samples collected or required pursuant to this Consent Order.

28. Person shall mean an individual, trust, firm, joint stock company, Federal Agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

29. Receptors shall mean those animal(s) or plant(s) which are or may receive or be affected by releases of hazardous waste, including hazardous constituents, from the facility.

30. Regional Administrator shall mean the Regional Administrator for the U.S. EPA Region 10, or her designee.

31. Release shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents).

32. RCRA Facility Investigation or RFI shall mean the investigation and characterization of the nature, extent, direction, rate, movement and concentration of releases of hazardous waste, including hazardous constituents, that have been or are likely to be released into the environment from the facility. The activities required for the RFI are detailed in the RFI Scope of Work included as Attachment A.

33. Respondent shall mean Rhone-Poulenc, Inc. ("RPI").

34. Solid Waste Management Unit or SWMU shall mean any discernible unit at which solid wastes have been placed at any time irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include spill or production areas at a facility at which solid wastes have been routinely and systematically released into or onto the environment.

35. Stabilization shall mean the techniques intended to control or abate threats to human health and/or the environment, and to prevent or minimize the spread of contamination while long-term corrective action alternatives are evaluated.

36. Statement of Work or SOW shall mean the outline of work required for implementation of an Interim Measure(s), a RCRA Facility Investigation, a Corrective Measures Study or a Corrective Measures Implementation as set forth in Attachments A, B, C and D to this Consent Order. The Statements of Work are incorporated into this Consent Order and are an enforceable part of this Consent Order.

37. Violate, Violations or Noncompliance of this Consent Order shall mean those actions, or failures to act by the Respondent which do not meet the quality and timeliness requirements of this Consent Order, its attachments or U.S. EPA written directives.

38. Work or Obligations or Performance of Work shall mean any activity the Respondent must perform to comply with the terms and conditions or requirements of this Consent Order and its attachments.

39. Workplan shall mean the detailed plans prepared by the Respondent to satisfy the requirements of the corresponding Scopes of Work. The required elements of each Workplan are presented in Section VI, Work to be Performed.

I. JURISDICTION

1.1 This Administrative Order on Consent ("Consent Order" or "Order") is issued pursuant to the authority vested in the Administrator of U.S. EPA pursuant to Section 3008(h) of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6928(h). The authority vested in the Administrator has been delegated to the Regional Administrator by U.S. EPA Delegations No. 8-31 and 8-32 and further delegated to the Director, Hazardous Waste Division by Regional delegation, R10 1281.7.

1.2 This Consent Order is issued to Rhone-Poulenc, Inc. ("RPI") ("Respondent"), the owner and controlling entity of the RPI facility located at 9229 East Marginal Way South, in Tukwila, Washington. Respondent consents to and agrees not to contest U.S. EPA's jurisdiction to issue this Consent Order and to enforce its terms. Further, Respondent will not contest U.S. EPA's jurisdiction to: compel compliance with this Consent Order in any subsequent enforcement proceedings, either administrative or judicial; require Respondent's full or interim compliance with the terms of this Consent Order; or impose sanctions for violations of this Consent Order. Accordingly, Respondent waives any rights it may have pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), or otherwise, to contest issuance and/or entry and/or the validity

of this Consent Order, including any right to a public hearing. Respondent waives any rights it may have to assert any error under 40 C.F.R. Subparts 22 or 24 regarding the issuance and/or entry of this Consent Order.

1.3 On January 30, 1986, U.S. EPA granted the State of Washington authorization to operate a hazardous waste program in lieu of the federal hazardous waste program pursuant to Section 3006(b) of RCRA, 42 U.S.C. § 6926(b). The State of Washington, however, has not been delegated the authority to enforce Section 3008(h) of RCRA, 42 U.S.C. § 6928(h).

II. PARTIES BOUND/APPLICABILITY

2.1 This Consent Order shall apply to and be binding upon Respondent and its officers, directors, employees, agents, successors and assigns, trustees, receivers, and upon all persons, including, but not limited to, independent contractors, contractors, and consultants acting under or on behalf of Respondent.

2.2 No change in ownership of the Facility or of any interest therein, or in Respondent's business organization or forms of operation will in any way alter Respondent's responsibilities under this Consent Order. Respondent will be responsible for and liable for any failure to carry out all activities required of Respondent by the express terms and conditions of the Consent Order, irrespective of its use of employees, agents, consultants or successor owners or operators to perform such tasks.

2.3 Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants retained to conduct or monitor any portion of the work performed pursuant to this Consent Order within one (1) week of the effective date of this Consent Order or date of such retention, whichever occurs later, and shall condition all such contracts on compliance with the terms of this Consent Order.

2.4 Respondent shall provide a copy of this Consent Order to any successor in interest at least sixty (60) days prior to transfer of any interest in the Facility, or transfer of any responsibility for the operation of the Facility, and shall notify U.S. EPA at least thirty (30) days prior to any such transfer.

2.5 Respondent agrees to undertake all actions required by the terms and conditions of this Consent Order and consents to the entry of this Consent Order without a hearing as a Consent Order entered pursuant to Section 3008(h) of RCRA, 42 U.S.C. § 6928(h).

2.6 Respondent is entering into this Consent Order for the purpose of conducting the requirements of this Consent Order. Respondent's execution of this Consent Order shall not be construed in any way as an admission of liability or of any findings of fact or conclusion of law stated herein.

III. STATEMENT OF PURPOSE

3.1 In entering into this Consent Order, the mutual objectives of U.S. EPA and Respondent are:

(1) To complete all site investigation and cleanup activities at the RPI Marginal Way Facility.

(2) To implement stabilization and interim measures to relieve threats to human health and/or the environment.

(3) To perform a RCRA Facility Investigation ("RFI") to determine fully the nature and extent of any release of hazardous waste and/or hazardous constituents at or from the Facility and for Respondent to prepare an RFI Report.

(4) To perform a Corrective Measures Study ("CMS") to identify and evaluate the corrective action alternatives necessary to prevent or mitigate any release or migration of hazardous wastes and/or hazardous constituents at or from the Facility.

(5) To implement to U.S. EPA's satisfaction the corrective action or response measures approved by U.S. EPA. U.S. EPA will determine whether such actions or measures are required, based on results of the RFI and CMS.

(6) To perform other activities to correct actual or potential threats to human health, welfare and/or the environment resulting from the release or potential release of hazardous wastes or hazardous substances or constituents at the Facility.

(7) To accomplish all of the foregoing in a manner consistent with RCRA, and applicable U.S. EPA regulations, guidance documents, and policies.

IV. U.S. EPA FINDINGS OF FACT

4.1 Respondent is an owner and operator of a hazardous waste facility located at 9229 East Marginal Way South, Tukwila, Washington. Until its closure in April, 1991, Respondent engaged in storage, of hazardous waste at the Facility subject to interim status requirements under 40 C.F.R. Part 265 and WAC § 173-303-400. The RPI Marginal Way Facility chemically manufactured vanillin, used as a food flavoring and as an intermediate in the production of pharmaceuticals. The Facility previously was operated by Monsanto Industrial Chemicals Company, which manufactured a variety of chemical products in addition to vanillin, including dry glues, resins, hardeners, and extenders. Figure 1 attached shows the Facility in relation to its surroundings and a site map of the Facility is shown in Figure 2.

4.2 The Monsanto Industrial Chemicals Company purchased the property in 1946 and began vanillin production at the Facility in June of 1952. Respondent purchased the Facility in October of 1986, and operated the Facility until April of 1991, when the Facility ceased operations.

4.3 Monsanto and RPI have owned and operated the Facility as a hazardous waste management facility on or after November 19, 1980, the applicable date which renders facilities subject to interim status requirements or the requirement to have

a permit under Sections 3004 and 3005 of RCRA, 42 U.S.C. §§ 6924 and 6925.

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4.4 Pursuant to Section 3010 of RCRA, 42 U.S.C. § 6930, Monsanto notified U.S. EPA on August 14, 1980 of its hazardous waste activity. In its notification, Monsanto identified itself as a generator of hazardous waste and an owner/operator of a treatment, storage, and/or disposal facility for the following listed wastes:

(a) D001, D002 and D003 (hazardous wastes exhibiting the characteristics of ignitability, corrosivity, or reactivity identified at 40 C.F.R. §§ 261.20-261.23);

(b) F001 (hazardous wastes from non-specific sources identified at 40 C.F.R. § 261.31); and

(c) U013, U080, and U220 (commercial chemical products, manufacturing chemical intermediates, off-specification commercial chemical products, or manufacturing chemical intermediates identified at 40 C.F.R. § 261.33(f)).

4.5 The relevant regulatory history of the Facility is as follows:

(a) November 12, 1980--Monsanto filed a RCRA Part A Permit Application Form 1 and Form 3, and listed tank storage capacity as 4,500 gallons and identified itself as handling D002, D003, F001, U013, U080, and U220 wastes at the Facility.

(b) September 30, 1982--Monsanto filed a revised RCRA Part A Permit Application Form 3 to include a container storage listing, to amend the D002 listing, to specify the quantity of D002 wastes as 1,000 tons, and to eliminate the U013 and U080 hazardous waste designations. Respondent states that UO13 and UO80 were eliminated from Monsanto's Form 3 because it did not generate those wastes.

(c) October 15, 1982--Monsanto filed a modified RCRA Part A Permit Application Form 3 to revise the quantity of D002 hazardous waste from 1,000 tons to 5,000 tons.

(d) August 1, 1984--Monsanto filed a Notification of Dangerous Waste Activities Form 2 with the Washington Department of Ecology ("Ecology"). The Facility identified itself as a generator and storage facility of the dangerous waste WT02 (mineral oil containing phenolics from vanillin manufacturing). It reported 125 tons as the estimated or actual annual waste quantity.

(e) April 11, 1985--Monsanto filed a revised Notification of Dangerous Waste Activities Form 2 with Ecology which listed the following wastes and estimated or actual quantity weights respectively: (1) still bottoms from vanillin manufacturing (WT02) at 1,000 tons; (2) vanillin black liquor solids from vanillin manufacturing (D002) at 12,000 tons; (3) phenolic

contaminated mineral oil from vanillin manufacturing (WT02) at 50 tons; and (4) strainer solids containing copper from vanillin manufacturing (D002) at 120 tons.

(f) August 18, 1986--Monsanto submitted to Ecology a Closure and Post-Closure Requirements P/M, regarding the on-site area hazardous waste storage area.

(g) October 2, 1986--Monsanto filed a revised Notification of Dangerous Waste Activities Form 2 with Ecology which described certain new wastes generated and/or revised the estimated or actual weights of existing wastes as: (1) vanillin black liquor solids from vanillin manufacturing (D002) at 6,000 tons; (2) strainer solids containing copper from vanillin manufacturing (WT02) at 100 tons; (3) spent methylene chloride solvent (F001) at 200 lbs; (4) waste shop solvent (WT02) at 200 lbs; (5) used Penneteck oil residue (WT02) at 25 tons. The October 2, 1986 Notification also indicated the 1986 change of ownership from Monsanto to Rhone-Poulenc Inc.

(h) November 17, 1986--Rhone-Poulenc, Inc. submitted to Ecology a second copy of the Closure and Post-Closure Requirements plan, prepared by Monsanto in August 1986, regarding the on-site RCRA hazardous waste storage area.

(i) April 24, 1987--Rhone-Poulenc, Inc. filed a revised Part A Permit Application Form 1 showing new operator name and address.

(j) May 26, 1988--Rhone-Poulenc Inc., filed a Notification of Dangerous Waste Activity Form 2 to Ecology.

(k) June 14, 1988--U.S. EPA sent a Notice of Violation and Warning, and Request for Information, to Rhone-Poulenc, Inc. based on findings from an inspection on March 31, 1988, and on information gathered during a subsequent investigation. Noncompliance items included: (1) failure to submit a revised Part A Permit Application due to the change of ownership from Monsanto to Rhone-Poulenc, Inc.; (2) failure to properly acknowledge in the interim status permit the storing of an F002 hazardous waste; and (3) failure to comply with the interim status financial requirements of 40 C.F.R. Part 265, Subpart H. U.S. EPA also sent a Notice of Violation and Warning, and Request for Information, to the Monsanto Company on June 27, 1988 indicating Monsanto failed to comply with the interim status financial requirements.

(l) July 19, 1988--Rhone-Poulenc, Inc. responded to the Notice of Violation and Warning, and Request for Information. It forwarded a revised Part A, Forms 1 and 3, updating operator local address, description, and quantities of hazardous wastes.

(m) August 19, 1988--Rhone-Poulenc, Inc. submitted an amended Closure and Post-Closure Requirements plan to Ecology.

(n) January 16, 1989--Rhone-Poulenc, Inc. submitted a notification of Dangerous Waste Activity Form 2 to Ecology, which added the waste "Black Liquor Solid (Dry Cake)" from vanillin manufacturer at 6,750 tons (WT01).

(o) May 19, 1989 and July 20, 1989--Rhone-Poulenc, Inc. submitted a second and third amended Closure and Post-Closure Requirements plan to Ecology.

(p) February 23, 1990--Rhone-Poulenc, Inc. submitted a notification of Dangerous Waste Activity Form 2 to Ecology to indicate a change in operation of the Facility to its wholly-owned subsidiary Rhone-Poulenc Specialty Chemicals Limited Partnership and to change the designation of strainer solids containing copper from vanillin manufacturing from WT01 to WT02.

(q) April 5, 1990--Rhone-Poulenc, Inc. filed a revised Part A Permit Application Forms 1 and 3 to indicate a change in ownership of the Facility to its wholly-owned subsidiary RPI.

4.6 A RCRA Facility Assessment ("RFA") was conducted by U.S. EPA at the Marginal Way Facility in 1989 (final report dated March 19, 1990). The purpose of the RFA was to identify and evaluate environmental releases, and to explore the potential for releases of hazardous wastes and constituents from solid waste management units ("SWMUs") and areas of concern ("AOCs") at the Facility. The RFA reviews, evaluates, and

incorporates soil and groundwater data generated by Dames and Moore in its 1981 and 1986 studies.

4.7 The RFA identified the following wastes generated at the Facility:

(a) Vanillin black liquor solid ("VBLS") slurry (D002) identified as a hazardous waste exhibiting the characteristic of corrosivity as identified in 40 C.F.R. § 261.22. The slurry contains trace amounts of toluene.

(b) VBLS dry cake identified as a Washington State Extremely Hazardous Waste (WT01).

(c) Copper-contaminated strainer solids identified as a Washington State Dangerous Hazardous Waste (WT01), which was later redesignated as WT02.

(d) Used phenolic-contaminated Peneteck oil residues identified as a Washington State Toxic Dangerous Waste (WT02).

(e) Spent methylene chloride (F002) identified as hazardous waste from non-specific sources identified at 40 C.F.R. § 261.31.

(f) Used shop solvents identified as a Washington State Extremely Hazardous Waste (WT01).

(g) The RFA also concluded that the Facility has generated and stored hazardous wastes, and has handled materials containing various hazardous constituents (as listed in Appendix VIII to 40 C.F.R. Part 261) such as

toluene and methylene chloride. Those hazardous constituents are also hazardous substances as listed in 40 C.F.R. § 302.4.

4.8 The RFA identified twelve (12) SWMUs and three (3) AOCs at the Facility, where hazardous wastes and/or hazardous constituents have, or may have been released into the environment. (See Figure 2 attached to this Consent Order for a site map identifying the location of SWMUs). The twelve (12) SWMUs are as follows:

(a) A RCRA hazardous waste storage area used for storing spent methylene chloride, copper-containing strainer solids, spent solvents, and Peneteck oil residues;

(b) A storage/distribution center complex and boneyard used to store plant equipment and materials;

(c) A general processing area;

(d) An oil storage area;

(e) A satellite accumulation area for methylene chloride laboratory wastes;

(f) Containment reservoirs and sumps which can hold mixtures of contaminated, surface run-off waters and process waste waters from various locations around the Facility, in which contaminants could include SWL, VBL, copper, sodium hydroxide, and other wastes;

(g) A storage and maintenance building area with four tanks once used for mersize storage, in which lubricating and parts cleaning solvents were used;

(h) Storage tanks in the pier area which stored raw materials, byproducts, and waste streams including SWL, sodium hydroxide, toluene, isopropyl alcohol, and dioctylphthalate, and wastewaters of various mixtures from plant-wide sources (from which at least three spills of VBL to the Duwamish River Waterway occurred and a leak of about 5,000 pounds of caustic soda from an underground pipe leading from the caustic holding tanks to the process area);

(i) A VBLS clarifier and filter building;

(j) Waste water treatment units (API separators) that were used to process facility waste water streams;

(k) Site of former maintenance shop/storage building; and

(l) North surface storage open ground area used to store other plant wastes.

4.9 Releases of hazardous wastes and/or hazardous constituents have occurred at and/or from the Facility. Recorded releases to the environment associated with specific Facility SWMUs as shown in Figure 2 include:

(a) SWMU No. 3

At least five (5) recorded spills occurred consisting of toluene, VBL, and SWL. These spills discharged into the

city sewer system and into the storm drainage system leading to the Duwamish River Waterway. Other releases identified in this area include spills of VBL which was used for weed control between 1952 and 1965, and spent mineral oil (Peneteck) and VBL, which dripped and leaked to the ground between 1952 and 1965. File documents also suggest that there was at least one (1) burial of sulfuric acid tank solids on site in 1969. Composite soil sampling at or near SWMU No. 3 in Sampling Areas H, I, J, as shown in Figure 3 attached hereto, identified the presence of hazardous constituents.

(b) SWMU No. 5

Compressor oil dripped and leaked to the ground from this SWMU between 1952 and 1980. In 1979, a one-time disposal of VBLS was also reported. Composite soil sampling at or near SWMU No. 5 in Sampling Area K, as shown in Figure 3 attached hereto, identified the presence of hazardous constituents.

(c) SWMU No. 11

This SWMU may have contained lubricating oils and cleaning solvents similar to solvents used in the current maintenance building on site. File documents suggest that in the maintenance shop, waste oils and solvents were disposed onto the ground between 1952 and 1980. Composite soil sampling at or near SWMU No. 11 in Sampling Area A in Figure 3 identified the presence of hazardous constituents.

4.10 Several SWMUs have no known recorded releases of hazardous waste and/or hazardous constituents to the environment. However, analyses of composite soil samples, taken by Dames and Moore from the Sampling Areas shown on Figure 3, identified the presence of hazardous constituents at or near the following-listed SWMUs:

SWMUs	ACTIVITY:	SAMPLING AREA
SWMU No. 2	Pentachlorophenol use	F
SWMU No. 6	Surface run-off waters and process wastewaters collection	B, D
SWMU No. 7	Mersize production area	C
SWMU No. 10	Process wastewater handling	H, B
SWMU No. 12	Plant Waste Storage	G

4.11 Groundwater monitoring wells were installed at the Facility (See Figure 4 attached hereto for location of wells) during the Site Assessment study performed by Dames and Moore in 1986. Dames and Moore identified well DM-1A as being up-gradient from on-site activities. Dames and Moore identified wells DM-4 and DM-5 as being down-gradient from DM-1A. Samples were collected by Dames and Moore from groundwater monitoring wells DM-1A, DM-4, and, DM-5. The analytical results were as follows:

Well #	Compounds	Groundwater	Perched Water Sample
DM-1A	Toluene	Not Detected	---
DM-4	Toluene	5,500 ppb	470,000 ppb
DM-5	Toluene	---	330 ppb

Groundwater sampled from well DM-4 identified toluene at a concentration of 5,500 ppb. Liquid sampled from boreholes DM-4 and DM-5 also showed above-background concentrations of toluene. In this liquid, laboratory results identified toluene (470,000 ppb in a DM-4 perched water sample and 330 ppb in a DM-5 perched water sample). The toluene levels identified in well DM-4 and boring DM-4 exceed the Safe Drinking Water standard for toluene, of 1,000 ppb, 56 Fed. Reg. 3525 (January 30, 1991).

4.12 Hazardous wastes and/or hazardous constituents at the Facility have been and may continue to be released from the Facility into the soil and groundwater beneath and beyond the Facility. These hazardous wastes and hazardous constituents may be released from the Facility to the environment through adjoining surface water drainage areas, directly into and through the groundwater, into the air, into human work areas, and into faunal and floral habitat areas, and faunal migration routes. The proximity of the Facility to the Duwamish River Waterway makes this receptor an area of potential impact. Contaminants may migrate from aquifers beneath the Facility to the Duwamish River Waterway. Groundwater in the upper aquifer

ultimately migrates toward and discharges into the Duwamish River Waterway. Discolored water was found (in some boreholes) and was interpreted by Dames and Moore to be related to on-site production activities.

4.13 The hazardous wastes and/or hazardous constituents identified and/or referenced above, include documented and suspected carcinogens, and may pose a threat to human health and the environment. Ingestion, inhalation or dermal contact with hazardous constituents identified in the soils and groundwater at the Facility can cause a wide range of deleterious human health effects if the concentrations of these substances exceed health-based exposure standards. The levels of toluene contamination reported in liquid obtained from boring DM-4 (up to 470,000 ppb) are much higher than the 17,500 ppb level recommended for protection of aquatic life found at 45 Fed. Reg. 79318 (Nov. 28, 1990). Based on the available data, it is unclear whether aquatic organisms in the adjacent Duwamish River Waterway have been affected, but those organisms are potential receptors of any contamination which has been or is migrating.

V. U.S. EPA CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the foregoing findings of fact, and the Administrative Record, U.S. EPA Region 10 has made the following conclusions of law and determinations:

5.1 Respondent is a company which is doing business in the State of Washington and is a "person" within the

meaning of Section 1004(15) of RCRA, 42 U.S.C. § 6903(15), and Washington Rev. Code § 70 105.010(7).

5.2 Respondent is a generator, owner and operator of a facility that has operated or is operating under interim status subject to Section 3005(e) of RCRA, 42 U.S.C. § 6925(e).

5.3 The Facility is a "facility" within the meaning of 42 U.S.C. § 6901(9).

5.4 Certain wastes and constituents thereof found at the Facility are hazardous wastes and/or hazardous constituents as defined by Section 1004(5) of RCRA, 42 U.S.C. § 6903(5). These are also hazardous wastes and/or hazardous constituents within the meaning of Section 3001 of RCRA, 42 U.S.C. § 6921, and 40 C.F.R. Part 261. Monsanto operated the facility after November 19, 1980 (the applicable date which renders facilities subject to the interim status requirements under Sections 3004 and 3005 of RCRA, 42 U.S.C. §§ 6924 and 6925) to October 1, 1986; Respondent has operated the Facility as a hazardous waste management facility from October 1, 1986 until April 1991.

5.5 There has been a release of hazardous wastes and/or hazardous constituents into the environment from Respondent's Facility, which may be continuing. It is necessary to determine the concentrations of these wastes and/or constituents at and beyond the Facility, and to assess whether such concentrations present unacceptable risks to human health or welfare or the environment.

5.6 The actions required by this Consent Order are deemed necessary to protect human health, welfare or the environment.

5.7 Pursuant to the Findings of Fact in Section IV of this Order, U.S. EPA has determined the following:

a. The nature of existing contamination has not been demonstrated to be limited to the compounds reported in the Dames and Moore studies.

b. The horizontal and vertical extent of contaminant migration at and from the Facility has not been, and cannot be, determined from data currently available to U.S. EPA. It is believed that the findings of the Landau and Associates Site Assessment should provide an improved understanding of the extent of site contamination and U.S. EPA will consider such Assessment's data and analysis in approving any proposed RFI Workplan.

c. The nature of the ground water contamination at the Facility and the migration within such ground water of hazardous constituents of materials previously stored or generated by Respondent may present an imminent and substantial endangerment to human health or the environment.

VI. WORK TO BE PERFORMED

6.1 Based on the foregoing, and pursuant to Section 3008(h) of RCRA, 42 U.S.C § 6928(h), Respondent agrees to perform, and is hereby ORDERED to perform the following acts, in the manner and by the dates specified herein. All work

undertaken pursuant to this Consent Order shall be performed in a manner consistent with this Consent Order, its Attachments, and all items incorporated or to be incorporated herein, including the IM Plan, if required pursuant to this Consent Order, the RFI Plan, the CMS Plan, the CMI Plan, RCRA and all regulations promulgated thereunder, and all applicable U.S. EPA guidance documents including, but not limited to, the "RCRA Groundwater Monitoring Technical Enforcement Guidance Document" ("TEGD") (October 1986), OSWER Dir. No. 8850.1, and the RFI Guidance, Volumes I-IV, ("RFI Guidance Manual"), (May, 1989), U.S. EPA Document No. EPA 530/SW-89/031. These named guidance documents are incorporated herein by this reference.

A. Stabilization/Interim Measure(s)

6.2 Respondent shall continually evaluate available data and assess the need or opportunity for interim measures throughout the duration of this Consent Order. Interim measures shall be used whenever possible to achieve the stabilization goals which are to control or abate immediate threats to human health and the environment, and to prevent or minimize the spread of contaminants while long-term corrective action alternatives are being evaluated.

6.3 Within sixty (60) days after the effective date of this Consent Order, Respondent shall submit to U.S. EPA and Ecology, an Interim Measures Assessment Report which evaluates available data, assesses the need and opportunity for interim measures, and, proposes any appropriate interim measures

necessary to further the achievement of stabilization goals as identified in paragraph 6.2 above. In the event Respondent identifies an immediate threat to human health or the environment based on such information, Respondent shall immediately notify orally U.S. EPA's Project Coordinator, and shall notify U.S. EPA in writing within seven (7) days describing the immediacy and magnitude of any such identified threat.

6.4 If U.S. EPA identifies or determines that interim measures are necessary to further the achievement of stabilization goals as identified in paragraph 6.2 above, U.S. EPA will notify Respondent in writing. Within sixty (60) days (or by such later date as may be agreed to by U.S. EPA) of receiving U.S. EPA's written notification, Respondent shall submit to U.S. EPA an IM Workplan that identifies appropriate interim measures. If U.S. EPA determines that immediate action is required, then the U.S. EPA Project Coordinator may orally authorize Respondent to act prior to Respondent's submittal of the IM Workplan. This IM Workplan may be required by U.S. EPA to include:

A. Interim Measure Description and Objectives;

B. A Health and Safety Plan;

C. A Public Involvement (community relations) Plan, as needed;

D. A Data Collection Quality Assurance Plan, as needed;

E. A Data Management Plan, as needed;

F. Bench Scale Treatability Study Plan, as needed;

G. Design Plan and Specifications;

H. An Operation and Maintenance Plan;

I. A Project Schedule;

J. An Interim Measure Construction Quality Assurance Plan; and

K. Reporting Requirements.

6.5 The IM Workplan shall ensure that the interim measures are designed to mitigate the identified threat and are consistent with, and can be integrated with, any long term corrective measures at the Facility. The plan shall describe in detail the procedures to be used by the Respondent for the implementation of the proposed interim measures.

6.6 The IM Workplan shall be submitted for U.S. EPA review and approval in accordance with the procedures in Section VII (Submissions/Agency Approval/Additional Work). The Respondent shall perform and implement the interim measures identified and described in the undisputed portions of the U.S. EPA-approved IM Workplan in accordance with the schedules therein contained. Upon agreement or after a final dispute resolution decision on any disputed portions of the IM Workplan, Respondent shall perform and implement interim measures contained in those portions of the IM Workplan in accordance with the schedules therein.

6.7 If at any time Respondent identifies the need or opportunity to conduct an interim or stabilization measure, then Respondent shall submit a written request to U.S. EPA for

review and approval of the proposed action, unless emergency action is required. Any interim or stabilization measures must be in the public interest and, to the maximum extent practicable, be consistent with future corrective actions. This requirement shall not apply to normal maintenance and operations activities, to the extent that these activities do not affect interim, stabilization or corrective measures, or investigations carried out pursuant to this Consent Order.

B. RCRA FACILITY INVESTIGATION ("RFI")

6.8 Within one hundred and fifty (150) days after the effective date of this Consent Order, Respondent shall submit to U.S. EPA for its review and approval, a RFI Workplan. A copy of the RFI Workplan shall also be submitted to Ecology. The RFI Workplan shall be developed in accordance with the RFI objectives and requirements set forth in Attachments A and B hereto and incorporated herein by this reference, RCRA, all regulations promulgated thereunder, the U.S. EPA RFI Guidance Manual, and all other applicable U.S. EPA guidances and policies.

6.9 The RFI Workplan shall document the procedures and provide a specific schedule that the Respondent shall use to conduct those investigations, when deemed necessary by U.S. EPA, to:

(a) characterize the environmental setting;

(b) characterize sources[s] and nature of hazardous wastes and constituents;

(c) characterize concentration, rate, and extent of contamination released at and from the Facility;

(d) identify any additional SWMUs or AOCs;

(e) develop a Risk Assessment;

(f) identify, and implement Stabilization/Interim Measure, and/or Corrective Measure technologies potentially applicable to the Facility;

6.10 In accordance with the provisions of Attachment A herein, the RFI Workplan shall, when deemed necessary by U.S. EPA, include the following:

(a) Project Management Plan;

(b) Data Collection Quality Assurance Plan;

(c) Data Management Plan; and

(d) Public Involvement (community relations) Plan.

6.11 The RFI Workplan shall detail the methodology for determining the presence, nature, extent, direction, and rate of movement of any hazardous wastes and/or hazardous constituents from or to all affected media within and beyond the Facility boundary.

6.12 The RFI Workplan shall include provisions for identification and characterization of any releases of Appendix IX, 40 C.F.R. Part 264 (hazardous constituents), as specified in Attachment A, from SWMUs and AOCs at the Facility.

6.13 The RFI Workplan shall detail the methodology for assessing the potential risk to human health and the

environment. This Workplan must be in accordance with U.S. EPA guidance EPA/540/1-89/002; "EPA Region 10 Supplemental Risk Assessment Guidance for Superfund," dated August 16, 1991; and "Guidelines for Developing Health-Based Cleanup Levels at RCRA Sites in Region 10," U.S. EPA guidance 910/9-92-019. The RFI Workplan must also include a detailed description of the methodology proposed to address the four main components of risk assessment: Contaminant Identification; Exposure Assessment; Toxicity Assessment; and Risk Characterization.

6.14 Within three hundred and twenty (320) days after receipt of written U.S. EPA approval of the final RFI Workplan, Respondent shall submit a Draft RFI Report to U.S. EPA for its review and approval, which shall detail the findings of Respondent's site investigatory activities, and shall discuss and analyze the existence or threat of release of hazardous constituents, substances, pollutants, or contaminants at or from the Facility. Within twenty (20) days after Respondent's receipt of comments from U.S. EPA on the Draft RFI Report, Respondent shall submit the Final RFI Report in accordance with the procedures set forth in Section VII.

C. RISK ASSESSMENT/MEDIA CLEANUP STANDARDS

6.15 Within thirty (30) days of the date the Respondent submits the Final RFI Report, Respondent shall submit to U.S. EPA the Human Health and Ecological Risk Assessment ("Risk Assessment") Report and Proposed Media Cleanup Standards

("MCSs") in accordance with the U.S. EPA-approved Risk Assessment methodology in the U.S. EPA-approved RFI Workplan.

6.16 A MCS shall be proposed for each hazardous waste and hazardous constituent released from any of the SWMUs or AOCs addressed by this Consent Order and identified as a Contaminant of Potential Concern during the risk assessment process. The MCSs will be used for measuring the necessity for and/or the degree of protection afforded by the corrective measures contemplated under Subsection D below. Respondent shall propose a MCS for each Contaminant of Potential Concern released into each of the media identified in the Final RFI Report. For each standard, Respondent shall include data justifying and supporting the limits specified, and the location at which the limits shall be met.

6.17 After Respondent submits the Risk Assessment Report and proposed MCSs, U.S. EPA shall establish final MCSs and the points of compliance or locations at which the MCSs must be met. The Respondent shall design the corrective measures so that the established MCSs can be achieved by the preferred corrective measures chosen by U.S. EPA from those identified in the CMS.

D. Corrective Measures Study (CMS)

6.18 Within forty-five (45) calendar days of written receipt of the final EPA established MCSs and points of compliance, Respondent shall submit a Draft CMS Workplan to EPA in accordance with the CMS Scope of Work in Attachment C and in

accordance with EPA guidance documents. Attachment C to this Consent Order is incorporated herein by reference.

6.19 The CMS shall detail the methodology for developing and evaluating the potential corrective action alternatives to remediate any contamination at or released from the Facility. Respondent shall consider the use of innovative treatment technologies as a final corrective measure for use on-site and off-site for the containment, treatment, remediation, and/or disposal of such contamination. Innovative treatment technologies shall be studied in accordance with the CMS Scope of Work and the EPA approved CMS Workplan. Respondent may consider and collect necessary information to propose the use of a Corrective Action Management Unit as provided in 40 C.F.R. § 264.552.

6.20 Potential Corrective Measures that involve treatment shall require treatability studies except where the Respondent can otherwise show to EPA's satisfaction that they are not needed. Where treatability studies are needed, Respondent shall include in the CMS Workplan a description of the type (e.g., bench versus pilot) and design of the study or studies.

6.21 Within ninety (90) days after Respondent receives written notice from EPA of approval of the CMS Workplan, Respondent shall submit to EPA a Corrective Measures Study (CMS) Report which contains the following information, as required by U.S. EPA, for each corrective measure studied:

(a) an evaluation of any treatability studies performed;

(b) an evaluation for the overall protectiveness of human health and of the environment;

(c) ability to attain the MCS([s]);

(d) ability to control the source[s] of release;

(e) an estimate and analysis of quantity, volume, and/or toxicity of the waste generated, including, but not limited to, contaminated soil, sludge and groundwater.

(f) methods to minimize the quantity, volume, toxicity and mobility of waste to be generated during the implementation of the approved alternative.

(g) an assessment of relevant institutional and legal requirements including the effects of any relevant federal, state or local environmental or public health standards, regulations, and/or ordinances on the design, operation, and timing of each corrective measure alternative;

(h) an assessment of short-term and of long-term reliability and effectiveness. This shall include an estimate of short-term and long-term reduction of toxicity, mobility, and volume of waste.

(i) an evaluation of ease of implementation;

(j) an estimate of the cost including capital and annual operation and maintenance costs;

(k) a recommendation as to which corrective measure([s]), in the Respondent's opinion, is best suited to meet the MCSs.

6.22 As part of the Corrective Measures Study, Respondent also agrees to consider waste minimization options. Respondent shall provide the following information for the preferred corrective measures chosen by U.S. EPA:

(a) an estimate and analysis of the quantity, volume, and toxicity of the waste generated, including, but not limited to, contaminated soil, sludge and groundwater, and

(b) methods to minimize the quantity, volume, toxicity and mobility of waste to be generated during the implementation of the approved alternative. Respondent shall refer to EPA's Waste Minimization Opportunity Assessment Manual and Draft Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program. (54 Fed. Reg. 25056 June 12, 1989)

6.23 After Respondent submits the CMS Report, EPA will either approve or disapprove the Report in accordance with Section VII. If EPA approves the CMS Report, it shall become final. If EPA disapproves the CMS Report, EPA shall specify the deficiencies and shall establish a time frame within which Respondent shall submit a modified report. If this modified

report is not approved, EPA may require further modification or make such modification as deemed necessary.

E. CORRECTIVE MEASURES IMPLEMENTATION (CMI)

6.24 Subject to Paragraphs 6.27 through 6.29 below, within sixty (60) days of Respondent's receipt of notification of EPA's selection of the corrective measure, Respondent shall submit to EPA a Corrective Measures Implementation Workplan ("CMI Workplan"). The CMI Workplan is subject to approval by EPA and shall be performed in a manner consistent with the CMI Scope of Work contained in Attachment D. Attachment D to this Consent Order is incorporated herein by this reference. The CMI Workplan shall be developed in accordance with, at a minimum, RCRA and other applicable Federal laws, their implementing regulations, and relevant EPA guidance documents.

6.25 The CMI Workplan shall be designed to facilitate the design, construction, operation, maintenance and monitoring of corrective measures at the Facility. In accordance with Attachment D herein, the CMI Workplan shall also include: (1) a Program Management Plan; (2) a Community Relations Plan; (3) Design Plans and Specifications; (4) an Operation and Maintenance Plan; (5) a Cost Estimate; (6) a Project Schedule; and (7) a Construction Quality Assurance Plan; (8) Data Collection Quality Assurance Plan; (9) Data Management Plan; and (10) Health and Safety Plan.

6.26 The CMI Workplan shall be submitted for U.S. EPA review and approval in accordance with the procedures set

forth in Section VII. Within thirty (30) days after Respondent receives written approval from U.S. EPA of the CMI Workplan, Respondent shall implement the CMI Workplan in accordance with the schedule therein.

6.27 Notwithstanding any other provision in this Consent Order, the parties agree that if conditions contained in Paragraph 6.28 below are met and Respondent does not want to implement the final corrective measure selected by U.S. EPA under consent, Respondent may withdraw its consent to implement said corrective measure. To be effective, such withdrawal of consent must be in writing, signed by the company signatory(ies) to this Consent Order, and received by the Hazardous Waste Division Director no later than fifteen (15) days from receipt of the final dispute resolution decision by U.S. EPA.

6.28 Respondent's right to withdraw its consent is limited to implementation of the corrective measure selected by U.S. EPA only and such right to withdraw shall not accrue until: (1) U.S. EPA has selected a final corrective measure as provided in this Consent Order; (2) and U.S. EPA issues a final decision under the dispute resolution procedures contained in Section XVI hereto. Nothing in this Section shall affect nor diminish Respondent's consent to any other provision in this Order, including its obligations hereunder to conduct interim measures, a RFI, a CMS, additional work as provided in Section VII, or issuance of stipulated penalties, nor Respondent's waiver of a public hearing under Section 3008(b), 42 U.S.C. § 6928(b), and 40

CFR Parts 22 and 24 as to the issuance/entry and validity of the Order as provided in Section I, Paragraph 1.2 of this Consent Order.

6.29 If Respondent exercises its right to withdraw its consent to implement the corrective measure as provided in this Section, U.S. EPA retains all authorities it has under RCRA and CERCLA to enforce implementation of the corrective measure or conduct response actions related to the Facility.

VII. AGENCY APPROVAL/SUBMISSIONS/ADDITIONAL WORK

A. EPA APPROVALS

7.1 Unless otherwise specified, and with the exception of monthly progress reports, EPA will review any draft Workplan, report, specification or schedule submitted pursuant to, or required by this Consent Order. EPA will provide its written approval, disapproval, comments and/or modifications to the Respondent. When EPA approves in writing, the submission becomes final.

7.2 Upon approval of any Workplan or report, Respondent shall commence work and implement the tasks required by the approved Workplan within thirty (30) days of its receipt of EPA's approval letter. Such work and tasks to be implemented must be performed in accordance with the standards, specifications and schedules stated in the approved Workplan as it may be modified by U.S. EPA pursuant to Section XXIV of this Consent Order.

7.3 Respondent shall submit an initial draft Workplan, report, specification or schedule pursuant to the schedules required by this Consent Order. U.S. EPA will review such document and provide Respondent with its approval, comments and/or required modifications. If Respondent agrees with U.S. EPA's comments and/or required modifications, Respondent shall submit a revised final document to U.S. EPA within thirty (30) days of its receipt of U.S. EPA's comments and/or required modifications. If Respondent disagrees or has questions concerning U.S. EPA's comments and/or required modifications, Respondent must, within five (5) days of receipt of U.S. EPA's comments or required modification request in writing a meeting or telephone conference to resolve the matter. Such written request will establish a thirty (30) day informal resolution period, and shall include a statement of the concerns Respondent wishes to address in the meeting or telephone conference. The parties will use their best efforts to informally resolve the matters in question. The thirty (30) day informal resolution period shall extend the due date for the resubmittal of the document by the same number of days. The thirty (30) day informal resolution period set forth in this paragraph shall apply only to the initial draft work plan, report, specification or schedule submitted by Respondent, unless U.S. EPA agrees to provide such a period on a subsequent draft. Notwithstanding provisions of this paragraph, upon receipt of a written disapproval letter, Respondent may request an extension to the thirty (30) day

informal resolution period which may be granted in U.S. EPA's sole discretion. If such extension is granted, the due date for the resubmittal of the document will be extended by the same number of days as the extension.

7.4 If agreement is reached within the informal resolution period, Respondent shall submit a revised, final draft plan or report which incorporates the agreed upon comments and/or modifications within thirty (30) days of reaching agreement. If agreement cannot be reached within the thirty (30) day period or extension thereof by U.S. EPA, U.S. EPA shall send a written letter of disapproval to Respondent. Within twenty (20) days of receipt of the written disapproval letter, Respondent shall submit a revised, final draft plan, report, specification or schedule incorporating U.S. EPA's comments and/or modifications unless it invokes the dispute resolution procedures pursuant to Section XVI of this Consent Order.

7.5 Where U.S. EPA and Respondent have reached agreement on a portion of any plan, report, specification or schedule required by this Consent Order, U.S. EPA may approve and make final those agreed upon provisions while other provisions may be subject to dispute resolution. Respondent shall commence work or perform tasks that has been approved and is otherwise undisputed within thirty (30) days of receipt of U.S. EPA's approval letter.

7.6 Verbal advice, suggestions, or comments given by U.S. EPA representatives will not constitute an official

approval, nor shall any verbal approval or verbal assurance of approval be considered binding unless related to emergency field activities as provided in this Order.

7.7 Any noncompliance with an approved U.S. EPA document or determination under the dispute resolution provision of this Consent Order constitutes a violation of this Consent Order subject to penalties under Section XV with the exception of Respondent's right to withdraw its consent set forth in Paragraph 6.27 above.

B. SUBMISSIONS

7.8 Beginning with the first full month following the effective date of this Consent Order, and throughout the period that this Consent Order is effective, Respondent shall provide U.S. EPA with monthly progress reports in the first year of the project. Following the first year, an appropriate schedule for submitting progress reports will be agreed upon between EPA and Respondent. Each report shall be due on the tenth day of the following month. The progress reports shall conform to requirements in the relevant Scopes of Work contained in Attachments A, B, C, and D.

7.9 Unless otherwise specified, all documents, including Workplans, reports and other correspondence, submitted by Respondent pursuant to this Consent Order shall be printed on recycled paper and delivered to the following persons at the addresses indicated, and to such other persons as U.S. EPA may specify by written notice to Respondent:

(A) Three (3) copies of all documents to be submitted to U.S. EPA should be sent to:

Tom Post
U.S. EPA Project Coordinator
U.S. EPA, Region 10
1200 Sixth Avenue, HW-104
Seattle, Washington 98101

(B) One copy of all documents should be sent to:

Byung Maeng
Department of Ecology
NWRO
3890 160th Avenue S.E.
Bellevue, WA 98008-5452

(C) One copy of each document to be submitted by Respondent should be sent to:

Attn: Ade Bright
FIFER Environmental Associates
32724 6th Avenue S.W.
Federal Way, WA 98023

C. PROPOSED CONTRACTOR/CONSULTANT

7.10 All work performed pursuant to this Consent Order shall be under the direction and supervision of a professional engineer, hydrologist, or geologist with expertise in hazardous waste site cleanup. The Respondent's contractor, subcontractor, or consultant shall have the technical expertise sufficient to adequately perform all aspects of the work for which they are responsible. Within ten (10) days after the effective date of this Consent Order, Respondent shall notify U.S. EPA in writing of the name, title and qualifications of the primary consultants and their personnel proposed to be used in carrying out the terms of this Consent Order. U.S. EPA will be

notified of proposed primary contractors and subcontractors managed by the primary consultants as they are selected. U.S. EPA reserves the right to reject the Respondent's proposed consultant, contractor and/or subcontractor within five (5) days of Respondent's notification. If U.S. EPA disapproves a proposed consultant, contractor or subcontractor, then Respondent must within twenty (20) days of U.S. EPA's disapproval notice, notify U.S. EPA in writing of the name and title, and if appropriate qualifications, of any replacement. U.S. EPA's disapproval shall not be subject to review under the dispute resolution provisions in Section XVI.

D. ADDITIONAL WORK

7.11 U.S. EPA may determine or Respondent may propose that certain tasks, including investigatory work, engineering evaluation, or procedure/methodology modifications are necessary in addition to the tasks and deliverables included in a Workplan when new information, unknown conditions or protection of human health and the environment indicates that such additional work is necessary to meet the purposes set forth in the Statement of Purpose (Section III). U.S. EPA shall request in writing that Respondent perform the additional work in this situation and shall specify the basis and reasons for U.S. EPA's determination that the additional work is necessary. Within fifteen (15) days after the receipt of such request, Respondent shall notify U.S. EPA of its willingness to perform the additional work or request a meeting with U.S. EPA to discuss

the additional work requested. If, after such meeting, Respondent disagrees with U.S. EPA's request for additional work, Respondent may invoke dispute resolution in accordance with the Section XVI of this Consent Order.

7.12 If dispute resolution is not invoked on U.S. EPA's written request for additional work, within sixty (60) days of receipt of U.S. EPA's notice, Respondent shall submit for U.S. EPA approval a Workplan incorporating the additional work. U.S. EPA's review and approval of such Workplan shall be subject to the procedures set forth in Section VII. Upon written approval of the Workplan, Respondent shall implement the Workplan in accordance with the schedule contained therein. All additional work performed by Respondent under this paragraph shall be performed in a manner consistent with this Consent Order.

VIII. QUALITY ASSURANCE

8.1 Throughout all sample collection and analysis activities, performed pursuant to this Consent Order, Respondent shall use quality assurance, quality control, and chain-of-custody procedures, as identified in Attachment B of this Consent Order and as maybe supplemented in approved Workplans.

8.2 In addition, Respondent shall:

(a) Notify U.S. EPA and Ecology of all sampling events at least ten (10) days prior to each sampling event.

(b) Inform the U.S. EPA Project Coordinator at least thirty (30) days in advance, which laboratories will be used by Respondent and ensure that U.S. EPA personnel

and U.S. EPA-authorized representatives have reasonable access to the laboratories and their personnel.

(c) Ensure that laboratories utilized by Respondent for analysis of samples taken pursuant to this Consent Order perform all analyses according to accepted U.S. EPA methods as set forth in Attachment B hereto.

(d) Ensure that all laboratories used by Respondent for analysis of samples taken pursuant to this Consent Order maintain a QA/QC program that, at a minimum, meets the requirements in SW 846. Such laboratories may be required by U.S. EPA to demonstrate the quality of analytical data. Should the demonstration reveal deficiencies in a laboratory's performance or QA/QC, resampling and analysis may be required.

8.2 All data submitted to U.S. EPA must be of known and documented quality. Respondent will be held accountable by U.S. EPA for ensuring and monitoring the quality of data obtained by its contract laboratory. U.S. EPA reserves the right to reject any data not generated in accordance with SW-846 or other protocols approved by U.S. EPA as required by this Consent Order.

IX. COMMUNITY RELATIONS/PUBLIC COMMENT AND PARTICIPATION

9.1 EPA may provide the public with an opportunity to review and comment on any approved IM Workplan except for Interim Measures performed due to emergency conditions. EPA may also provide the public with an opportunity

to review and comment on the final draft of the Corrective Measures Study Report and a description of EPA's proposed corrective measure(s) and EPA's justification for proposing selection of such corrective measure(s) (the "Statement of Basis").

9.2 Following the public review and comment period, EPA will notify Respondent of the final corrective measure selected by EPA. The notification will include EPA's reasons for selecting the corrective measure. EPA may approve the Corrective Measures Study Report or require that the Respondent revise the Report or perform additional corrective measure studies.

X. ON-SITE AND OFF-SITE ACCESS

10.1 U.S. EPA, its contractors, subcontractors, employees, or any U.S. EPA representatives are authorized to enter at all reasonable times and freely move about the Facility pursuant to this Consent Order for the purposes of, inter alia: interviewing Facility personnel and contractors; inspecting records, operating logs, and contracts related to the Facility; reviewing the progress of the Respondent in carrying out the terms of this Consent Order; conducting such tests, sampling, or monitoring as U.S. EPA or its Project Coordinator deem necessary, using a camera, sound recording, or other documentary type equipment; and verifying the reports and data submitted to U.S. EPA by the Respondent. Because it is currently not in operation, if the Facility is locked or otherwise closed to

workers and visitors during regular business hours or at an otherwise reasonable time, Respondent shall make the Facility accessible to U.S. EPA within four (4) hours of oral notice of U.S. EPA's intent to enter the Facility. The Respondent shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, that pertain to work undertaken pursuant to this Consent Order. Respondent shall grant the same rights of access and availability of split samples and other oversight activities to Ecology and its contractors and/or representatives that are provided to U.S. EPA under this Consent Order. All persons entering the site shall meet applicable health and safety requirements in accordance with the Site Safety Plan.

10.2 To the extent that work being performed pursuant to this Consent Order must be done on property not owned or controlled by Respondent, Respondent shall use its best efforts to obtain access agreements necessary to complete work required by this Consent Order from the present owner(s) of such property within thirty (30) days of approval of any Workplan for which site access is required or of the date that the need for access became known to the Respondent. Best efforts as used in this paragraph shall include, at a minimum, a certified letter from Respondent to the present owners of such property requesting access agreements to permit Respondent, U.S. EPA and its authorized representatives and Ecology and its authorized representatives to access such property and, if requested by an

off-site owner, an offer to provide reasonable compensation. If Respondent does not receive any response to its second access easement request to an off-site owner or operator controlling access to property within thirty (30) days of receipt of such second request, then Respondent may consider lack of response as denial of access. Any such access agreement shall provide access to U.S. EPA and its representatives and Ecology and its representatives, and Respondent shall ensure that U.S. EPA's Project Coordinator has a copy of any access agreement(s). In the event that agreements for access are not obtained, Respondent shall notify U.S. EPA, in writing, within ten (10) days thereafter regarding both the efforts undertaken to obtain access and its failure to obtain such agreements. The Respondent agrees to indemnify the United States Government as provided in Section XXI (Indemnification) for any and all claims arising from activities on such property. In the event U.S. EPA obtains access, Respondent shall undertake U.S. EPA-approved work on such property.

10.3 Nothing in this section limits or otherwise affects U.S. EPA's right of access and entry pursuant to applicable law, including RCRA and CERCLA.

10.4 Nothing in this section shall be construed to limit or otherwise affect the Respondent's liability and obligation to perform corrective action including corrective action beyond the Facility boundary, notwithstanding the lack of access. EPA may determine that additional on-site measures must

be taken to address releases beyond the Facility boundary if access to off-site areas cannot be obtained.

XI. SAMPLING AND DATA/DOCUMENT AVAILABILITY

11.1 The Respondent shall submit to U.S. EPA the results of all sampling and/or tests or other data generated by its employees, divisions, agents, consultants, or contractors with respect to the implementation of the Consent Order.

11.2 Respondent shall notify U.S. EPA and Ecology, in writing, at least ten (10) days before engaging in any field activities, such as well drilling, installation of equipment, or sampling. If Respondent believes they must commence emergency field activities without delay, Respondent may seek emergency telephone authorization from the U.S. EPA Project Coordinator or if the Project Coordinator is unavailable, his/her Section Chief, to commence such activities immediately. At the request of U.S. EPA, Respondent shall provide or allow U.S. EPA or its authorized representative or Ecology or its authorized representatives to take split samples or duplicate samples of all samples collected by Respondent pursuant to this Consent Order. Similarly, at the request of Respondent, U.S. EPA and Ecology shall allow Respondent or its authorized representative(s) to take split or duplicate samples of all samples collected by them under this Consent Order.

11.3 Respondent may assert a business confidentiality claim covering all or part of any information submitted to U.S. EPA pursuant to this Consent Order. Any

assertion of confidentiality must be accompanied by responses to the questions listed at 40 C.F.R. § 2.204(e)(4) or such claim shall be deemed waived. Information determined to be confidential by U.S. EPA shall be disclosed only to the extent permitted by 40 C.F.R. Part 2. If no such confidentiality claim accompanies the information when it is submitted to U.S. EPA, the information may be made available to the public by U.S. EPA without further notice to the Respondent. Respondent agrees not to assert any confidentiality claim with regard to any physical or analytical data obtained pursuant to this Consent Order.

XII. RECORD PRESERVATION

12.1 Respondent agrees that they shall retain, during the pendency of this Consent Order and for a minimum of six (6) years after its termination, all data, records, and documents now in its possession or control or which come into its possession or in the possession of its division, officers, directors, employees, agents, contractors, successors, and assigns which relate in any way to this Consent Order or to the work performed pursuant to this Consent Order, or to hazardous waste management and/or disposal at the Facility. Respondent shall make such records available to U.S. EPA for inspection or shall provide copies of any such records to U.S. EPA upon written request. Respondent shall instruct its contractors, consultants, and agents to preserve all documents and information of whatever kind relating to the Facility or the performance of work. Respondent shall notify U.S. EPA in writing thirty (30) days

prior to the destruction of any such records, and shall provide U.S. EPA with the opportunity to take possession of any such records.

XIII. PROJECT COORDINATOR

13.1 Within ten (10) days of the effective date of this Consent Order, U.S. EPA and Respondent shall each designate a Project Coordinator. The parties may change their Project Coordinator but agree to provide at least ten (10) days written notice prior to changing Project Coordinator. Respondent shall notify U.S. EPA, in writing, of the Project Coordinator it has selected. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order and for designating a person to act in his/her absence. The U.S. EPA Project Coordinator will be U.S. EPA's designated representative at the Facility. All communications between Respondent and U.S. EPA, and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Order shall be directed through the Project Coordinators. U.S. EPA's initial Project Coordinator shall be:

Tom Post
U.S. Environmental Protection Agency
RCRA Compliance Section
1200 Sixth Avenue, HW-104
Seattle, Washington 98101

Respondent's initial Project Coordinator shall be :

Edwin Liu
Rhone-Poulenc, Inc.
CN7500
Cranbury, NJ 08512

13.2 The absence of the U.S. EPA Project Coordinator or Respondent's Project Coordinator from the Facility shall not be cause for the stoppage of work.

XIV. NOTIFICATION AND DOCUMENTATION CERTIFICATION

14.1 Unless otherwise provided, all written notices of approvals, disapprovals, noncompliance or other decisions by U.S. EPA pursuant to this Consent Order shall be deemed effective upon receipt at the office of Respondent's designated Project Coordinator. Unless otherwise provided, any written notices required by Respondent pursuant to this Consent Order shall be deemed effective upon receipt at the office of U.S. EPA's designated Project Coordinator. All written notices shall be sent by fax, express service or certified mail receipt requested.

14.2 Any notice, report, certification, data presentation or other document submitted by Respondent pursuant to this Consent Order which discusses, describes, demonstrates, supports any finding or makes any representation concerning Respondent's compliance with any requirement of this Consent Order shall be certified by a responsible corporate officer of Respondent or a duly authorized representative. A responsible officer means: (a) a president, secretary, treasurer or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of one or more manufacturing, production, or operating facilities

employing more than 250 persons or having gross annual sales or expenditures exceeding $35 million (in 1987 dollars when the Consumer Price Index was 345.3), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. A person is a duly authorized representative only if: (a) the authorization is made in writing by a responsible officer; (b) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent or position of equivalent responsibility, or an individual or position having overall responsibility for the company's environmental matters at the regulated facility or activity (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and (c) the written authorization is submitted to the U.S. EPA.

14.3 The certification of the responsible corporate officer or duly authorized representative required by paragraph (3) above of this Consent Order shall be in the following form:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to evaluate the information submitted. I certify that the information contained in or accompanying this [type of

submission] is true, accurate, and complete. As to [the/those identified positions] of this [type of submission] for which I cannot personally verify [its/their] accuracy, I certify under penalty of law that this [type of submission] and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who may manage the system, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

XV. DELAY IN PERFORMANCE/STIPULATED PENALTIES

15.1 Unless there has been a written modification by U.S. EPA of a compliance date, a written modification by U.S. EPA of an approved Workplan condition, or excusable delay as defined under the "Force Majeure and Excusable Delay" provision, if the Respondent fails to comply with any term or condition set forth in the Consent Order and its Attachments, or any Workplans approved under this Consent Order in the time or manner specified therein, Respondent shall pay stipulated penalties as set forth

below upon written demand of U.S. EPA. The stipulated penalties below may apply in U.S. EPA's discretion to work that is not of acceptable quality to U.S. EPA consistent with the relevant Workplan or is not submitted within the specified time schedule approved under this Consent Order. U.S. EPA may, in its discretion, waive imposition of stipulated penalties if it determines that Respondent has attempted in good faith to comply with this Order or in the event of timely cure of defects in initial submissions.

(A) For failure to commence, perform, and complete field work in a manner specified in the approved Workplan or at the time required pursuant to this Consent Order: $ 500 per day for the first one to seven (1-7) days of delay, and $ 1,000 per day for each day of delay thereafter;

(B) For failure to complete and submit any Workplans or reports, other than progress reports, in acceptable quality to U.S. EPA or at the time required pursuant to this Consent Order: $ 500 per day for the first one to seven (1-7) days of delay, $ 1,500 per day for eight to twenty-one (8-21) days of delay, and $ 3,000 per day for each day of delay thereafter;

(C) For failure to complete and submit other deliverables in acceptable quality to U.S. EPA or at the time required pursuant to this Consent Order:

$ 250 per day for the first one to seven (1-7) days of delay, $ 500 per day for eight to twenty-one (8-21) days of delay, and $ 750 per day for each day of delay thereafter;

(D) For failure to comply with any other provisions of this Consent Order: $ 250 per day for the first one to seven (1-7) days of noncompliance, $ 500 per day for eight to twenty-one (8-21) days of noncompliance, and $ 1,000 per day for each day of noncompliance thereafter.

15.2 All penalties shall begin to accrue on the day after the completed performance is due or the day non-compliance occurs, and shall continue to accrue through the final day of correction of the non-compliance. Non-compliance due to the unacceptable quality of a Workplan, Report or other deliverable shall be deemed to occur no sooner than the date of U.S. EPA's notice letter notifying Respondent of the non-compliance. U.S. EPA will provide written notice for all other violations that are not based on timeliness; nevertheless, penalties for all violations shall accrue from the day non-compliance occurs.

15.3 All penalties owed the United States under this Section shall be due and payable within thirty (30) calendar days of the Respondent's receipt from U.S. EPA of a written demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XV of this

Consent Order. Such written demand will describe the noncompliance and shall indicate the amount of penalties due.

15.4 U.S. EPA may collect interest on the unpaid stipulated penalty balance beginning on the thirty-first day after Respondent's receipt of U.S. EPA's Rate demand letter established by the Secretary of the Treasury. Interest shall accrue at Current Value of Funds. Pursuant to 31 U.S.C. § 3717, a penalty of six (6) percent per annum on the unpaid principal shall be assessed for any payment which is overdue for ninety (90) or more days.

15.5 All penalties shall be made payable by certified or cashier's check to the Treasurer of the United States of America and shall be remitted to:

U.S. Environmental Protection Agency
(Region 10 Hearing Clerk)
P.O. Box 360903M
Pittsburgh, Pennsylvania 15251

The check shall reference the name of the Facility, the Respondent's name and address, and the U.S. EPA Docket Number of this action. Copies of the check and letter transmitting the check shall be sent simultaneously to the U.S. EPA Project Coordinator and the Regional Hearing Clerk, at MS-SO-155, 1200 Sixth Avenue, Seattle, WA 98101.

15.6 Respondent may dispute U.S. EPA's assessment of stipulated penalties by invoking the dispute resolution procedures under Section XVI of this Consent Order. The stipulated penalties in dispute shall continue to accrue, but need not be paid, during the dispute resolution period. If

Respondent does not prevail upon resolution of the dispute and U.S. EPA has not waived imposition of stipulated penalties, Respondent shall remit to U.S. EPA within seven (7) days of receipt of such resolution any outstanding penalty payment, including any accrued interest, which accrued prior to and during the period of dispute. If Respondent prevails upon resolution of the dispute, no penalties shall be payable.

15.7 Neither invoking dispute resolution nor the payment of penalties shall alter in any way Respondent's obligation to comply with the terms and conditions of this Consent Order.

15.8 The stipulated penalties set forth in this Section do not preclude U.S. EPA from pursuing any other remedies or sanctions which may be available to U.S. EPA by reason of Respondent's failure to comply with any of the terms and conditions of this Consent Order. However, all stipulated penalties which are paid by Respondent may be off-set against any and all penalties for the same violation which U.S. EPA may be entitled to collect as a result of other enforcement actions.

XVI. DISPUTE RESOLUTION

16.1 The parties shall use their best efforts to informally and in good faith resolve all disputes or differences of opinion as provided in Section VII of the Consent Order. With exception of the procedures regarding enforcement of this Consent Order, the Parties agree that the procedures contained in this

Section are the sole procedures for resolving disputes arising under this Consent Order.

16.2 If Respondent disagrees, in whole or in part, with any U.S. EPA written disapproval, modification, or other decision or directive made by U.S. EPA pursuant to the terms of this Consent Order, Respondent shall notify U.S. EPA, in writing, of its objections and the basis therefore not later than fifteen (15) days after Respondent's receipt of U.S. EPA's disapproval, modification, decision or directive.

16.3 To be valid for consideration, such notice must set forth substantially: (1) the specific issue(s); (2) the position Respondent contends should be adopted as consistent with the requirements of this Consent Order; and (3) the basis for and reasoning supporting Respondent's position.

16.4 Not later than fourteen (14) days after U.S. EPA's receipt of such written notice, U.S. EPA, by the Hazardous Waste Division Director, shall provide to Respondent, in writing, its initial decision and reasons therefore on such dispute. Thereafter, Respondent shall have seven (7) additional calendar days during which to respond to the decision, to provide to U.S. EPA arguments not previously made, and to urge that U.S. EPA reconsider and vacate its initial dispute decision, or reconsider and modify such dispute decision in the respects urged.

16.5 U.S. EPA shall notify Respondent within seven (7) days of receiving Respondent's request to reconsider and vacate of U.S. EPA's decision on the request. Unless vacated or

modified, the initial U.S. EPA dispute decision shall be complied with according to its terms by both U.S. EPA and the Respondent seven (7) days after Respondent's receipt of U.S. EPA's decision to reconsider and vacate. Unless otherwise specified in U.S. EPA's initial or modified decision, timeframes contained in Section VII shall apply with respect to submission of a revised draft or commencement of work.

16.6 The existence of a dispute pursuant to this Section, and/or the consideration of matters in dispute, shall not excuse, toll, or suspend any compliance deadline otherwise existing pursuant to this Consent Order, or any performance time incorporated or to be incorporated into this Consent Order.

16.7 In any dispute resolution or proceeding consequent thereon, the administrative record created during the dispute resolution process shall be the primary basis for deciding the dispute.

XVII. FORCE MAJEURE AND EXCUSABLE DELAY

17.1 Force Majeure, for purposes of this Consent Order, is defined as any event arising from causes not foreseeable and beyond the control of Respondent or any person or entity controlled by Respondent, including, but not limited to, Respondent's contractors and subcontractors, that delays or prevents the timely performance of any obligation under this Consent Order despite Respondent's best efforts to fulfill the obligation. The requirement that Respondent exercise "best efforts to fulfill the obligation" shall include, but not be

limited to, best efforts to anticipate any potential Force Majeure event and address it before, during, and after its occurrence, such that any delay or prevention of performance is minimized as much as possible. Force Majeure does not include increased costs of the work to be performed under this Consent Order or financial inability to complete the work.

17.2 If any event occurs or has occurred that may delay the performance of any obligation under this Consent Order, whether or not caused by a Force Majeure event, Respondent shall notify by telephone U.S. EPA's Project Coordinator or, in his or her absence, U.S. EPA's RCRA Compliance Section Chief, in the event both of U.S. EPA's designated representatives are unavailable, the Director of the Hazardous Waste Division, U.S. EPA Region 10, within forty-eight (48) hours of when Respondent first knew that the event might cause a delay. Within seven (7) days thereafter, Respondent shall provide in writing to U.S. EPA the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a Force Majeure event if they intend to assert such a claim; and a statement as to whether, in the opinion of the Respondent, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Respondent shall include with any notice all available documentation supporting its claim

that the delay was attributable to a Force Majeure. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of Force Majeure for that event. Respondent shall be deemed to have notice of any circumstances of which its contractors or subcontractors had or should have had notice.

17.3 If U.S. EPA agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this Consent Order that are affected by the Force Majeure event shall be extended by U.S. EPA for such time as is necessary to complete those obligations. U.S. EPA will notify the Respondent, in writing, of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event. The existence of a Force Majeure event shall not, of itself, extend the time for performance of any subsequent obligation. If U.S. EPA does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, U.S. EPA will notify Respondent, in writing, of its decision.

17.4 If Respondent elects to invoke the dispute resolution procedures set forth in Section XVI, they shall do so no later than fifteen (15) days after receipt of U.S. EPA's notice. Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were

exercised to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of this Section. If Respondent carries this burden, the time for performance of the obligation will be extended in accordance with the U.S. EPA's final decision.

XVIII. RESERVATION OF RIGHTS

18.1 U.S. EPA expressly reserves all rights and defenses that it may have, including the right both to disapprove of work performed by Respondent pursuant to this Consent Order and to request that Respondent perform tasks in addition to those stated in any approved Workplan and/or Scopes of Work pursuant to this Consent Order in accordance with Paragraph 7.11 herein.

18.2 U.S. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this Consent Order, including without limitation the assessment of penalties under Section 3008(h)(2) of RCRA, 42 U.S.C. § 6928(h)(2). This Consent Order shall not be construed as a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, and/or authorities, civil or criminal, which U.S. EPA has under RCRA, CERCLA, or any other statutory, regulatory, or common law authority of the United States.

18.3 The entry of this Consent Order and Respondent's consent to comply shall not limit or otherwise preclude the Agency from taking additional enforcement action

pursuant to Section 3008(h) of RCRA, 42 U.S.C. § 6928(h), or other available legal authorities should the Agency determine that such actions are warranted.

18.4 If U.S. EPA determines that activities in compliance or noncompliance with this Consent Order have caused or may cause a release of hazardous waste, hazardous constituent(s), pollutant(s), or contaminant(s), or a threat to human health and/or the environment, or that Respondent is not capable of undertaking any studies or corrective measures ordered, U.S. EPA may order Respondent to stop further implementation of this Consent Order for such period of time as U.S. EPA determines may be needed to abate any such release or threat and/or to undertake any action which U.S. EPA determines is necessary to abate such release or threat. This determination is not subject to Part XVI (Dispute Resolution).

18.5 U.S. EPA reserves the right to perform any portion of the work consented to herein or any additional site characterization, feasibility study, and response/corrective actions as it deems necessary to protect human health and/or the environment in the event Respondent fails to do so under the terms of this Consent Order. Nonetheless, U.S. EPA may exercise its authority under CERCLA to undertake response actions at any time. In any event, U.S. EPA reserves any right it may have to seek reimbursement from Respondent for costs incurred by the United States. Notwithstanding compliance with the terms of this Consent Order, Respondent is not released from liability, if any,

for the costs of any such response actions taken or authorized by U.S. EPA.

18.6 Respondent reserves its right to withdraw its consent to this Order only as to implementation of the final corrective measure selected by U.S. EPA. Said reservation is limited to the terms and conditions provided in Section VI, Subpart E.

XIX. JUDICIAL REVIEW

19.1 The Respondent shall not seek judicial review of this Consent Order in any action except an action by the United States to: 1) enforce this Consent Order; 2) recover costs incurred in connection with this Consent Order; or 3) compel action relating to the releases of hazardous wastes and/or constituents addressed by this Consent Order. Judicial review of this Consent Order shall be limited to the administrative record. Otherwise applicable principles of administrative law shall govern whether any supplemental materials may be considered by the court. In considering objections raised in any judicial review, U.S. EPA's decisions shall be upheld unless the court finds they were arbitrary and capricious or otherwise not in accordance with law. Nothing in this paragraph shall limit any action by Respondent against any party to recover costs incurred in implementing this Consent Order, or for damages or contribution pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607, or other applicable law; or any action pursuant to Section 310 of

CERCLA, 42 U.S.C. § 9659, or Section 7002 of RCRA, 42 U.S.C. § 6972.

XX. OTHER CLAIMS

20.1 Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, taken or migrating from the Facility. The Respondent waives any claims or demands for compensation or payment under Sections 106(b), 111 and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611 and 9612, against United States or the Hazardous Substances Superfund established by 26 U.S.C. § 9507 for, or arising out of, any activity performed or expense incurred pursuant to this Consent Order. Additionally, this Consent Order does not constitute any decision on preauthorization of funds under § 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

XXI. OTHER APPLICABLE LAWS

21.1 This Consent Order is not intended to be nor shall it be construed as a permit. All actions required to be taken pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations. Respondent shall obtain or

cause its representatives to obtain all permits and approvals necessary under such laws and regulations.

XXII. INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

22.1 Respondent agrees to indemnify and save and hold harmless the United States Government, its agencies, departments, agents, and employees, from any and all claims or causes of action arising from acts or omissions of the Respondent or its officers, employees, agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Consent Order. This indemnification shall not be construed in any way as affecting or limiting the rights or obligations of the Respondent or the United States under their various contracts. Nothing in this Section is intended in any way to: (a) expand or increase any liability of the United States, its agents, or employees under existing law; (b) alter or affect any rule of law; or (c) obligate the United States to pay funds in contravention of the Anti-Deficiency Act 31 U.S.C. § 1341.

XXIII. FINANCIAL RESPONSIBILITY

23.1 Within thirty (30) days of entry of this Consent Order, Respondent shall establish and maintain financial security in the amount of $ 7 Million in one of the following forms:

(a) A surety bond guaranteeing performance of the necessary work;

(b) One or more irrevocable letters of credit equalling the total estimated cost of the work;

(c) A trust fund;

(d) A guarantee to perform the work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with Respondent; or

(e) A demonstration that Respondent satisfies the requirements of 40 C.F.R. § 264.143(f).

23.2 If Respondent seeks to demonstrate the ability to complete the work through a guarantee by a third party pursuant to Paragraph 22.1(d) of this Consent Order, Respondent shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. § 264.143(f). If Respondent seeks to demonstrate its ability to complete the work by means of the financial test or the corporate guarantee pursuant to Paragraph 22.1(d) or (e), or shall resubmit sworn statements conveying the information required by 40 C.F.R. § 264.143(f) annually, on the anniversary of the effective date of this Consent Order. In the event that U.S. EPA, determines at any time that the financial assurances provided pursuant to this Section does not meet the requirements of this section, Respondent shall, within thirty (30) days of receipt of notice of U.S. EPA's determination, obtain and present to U.S. EPA for approval one (1) of the other forms of financial assurance listed in Paragraph 23.1 of this Consent Order.

Respondent's inability to demonstrate financial ability to complete the work shall not excuse performance of any activities required under this Consent Order.

XXIV. MODIFICATION

24.1 This Consent Order may be modified by mutual agreement of U.S. EPA and Respondent. Any agreed modifications shall be in writing, be signed by Respondent and U.S. EPA and shall have as their effective date the date on which they are signed by U.S. EPA, and shall be incorporated into this Consent Order.

24.2 Any reports, plans, specifications, schedules, and attachments required by this Consent Order are, upon written approval by U.S. EPA, incorporated into this Consent Order. Unless there is an approved modification as provided in Paragraph 24.1 of this Section, any noncompliance with such U.S. EPA-approved reports, plans, specifications, schedules, and attachments shall be considered a violation of this Consent Order and may subject Respondent to the stipulated penalty provisions of this Consent Order.

24.3 Any requests for a compliance date modification and/or revision of an approved Workplan requirement must be made in writing. Such requests must provide justification for any proposed compliance date modification or Workplan revision. U.S. EPA has no obligation to approve such requests. Nothing in this Paragraph shall require an approved modification for an extension to a schedule deadline if such

extension was previously agreed upon by the Respondent and the U.S. EPA Project Coordinator and documented in writing.

24.4 No informal advice, guidance, suggestions, or comments by U.S. EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondent will be construed as relieving Respondent of its obligation to obtain written approval, if and when required by this Consent Order.

XXV. SEVERABILITY

25.1 If any provision or authority of this Consent Order or the application of this Consent Order to any party or circumstances is held by any judicial or administrative authority to be invalid, the application of such provisions to other parties or circumstances and the remainder of the Consent Order shall remain in force and shall not be affected thereby.

XXVI. TERMINATION AND SATISFACTION

26.1 The provisions of this Consent Order shall be deemed satisfied upon Respondent's execution and U.S. EPA's receipt of an "Acknowledgment of Termination and Agreement to record Preservation and Reservation of Rights" ("Acknowledgment"). U.S. EPA will prepare the Acknowledgment for Respondent's signature. The Acknowledgment will specify that Respondent has demonstrated to the satisfaction of U.S. EPA that the terms of this Consent Order, including any additional tasks determined by U.S. EPA to be required pursuant to this Consent Order, have been satisfactorily completed. In addition, the Acknowledgment will ensure that all records will be preserved in

accordance with Section XII (Record Preservation) and Section XVIII (Reservation of Rights) provisions of this Consent Order after the Consent Order is terminated.

The acknowledgment required by this Section shall be as follows:

ACKNOWLEDGMENT OF TERMINATION AND AGREEMENT TO RECORD PRESERVATION AND RESERVATION OF RIGHTS

1. The United States Environmental Protection Agency ("U.S. EPA") agrees and acknowledges that the terms of Consent Order RCRA-1091-11-20-3008(h) entered into by Respondent and U.S. EPA on _____, 1993 ("the Consent Order"), including any additional tasks determined by U.S. EPA to have been required pursuant to the Consent Order, except Section XII (Record Preservation), have been satisfactorily completed based upon the information available to EPA presently.

2. Respondent agrees and acknowledges that the terms of Section XVII (Record Preservation) of the Consent Order remain in effect.

3. Respondent agrees and acknowledges that Respondent' completion of the terms of the Consent Order does not limit or otherwise preclude U.S. EPA from taking additional enforcement action pursuant to Section 3008(h) of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended by the Hazardous and

Solid Waste Amendments of 1984, 42 U.S.C. § 6928(h), or other available legal authorities should U.S. EPA determine that such actions are warranted.

4. Respondent agrees and acknowledges that Respondent's completion of the terms of the Consent Order does not relieve Respondent of its obligations to comply with RCRA or any other applicable local, state, or federal laws and regulations.

IT IS SO AGREED AND ACKNOWLEDGED:

By: _____ _____
(Respondent) Date

By: _____ _____
RANDALL F. SMITH, Director Date
Hazardous Waste Division, Region 10
United States Environmental Protection Agency

XXVII. SURVIVABILITY/PERMIT INTEGRATION

27.1 Except as otherwise expressly provided in this Section, this Consent Order shall survive the issuance or denial of a RCRA permit for the Facility, and this Consent Order shall continue in full force and effect after either the issuance or denial of such permit. Accordingly, Respondent shall continue to be liable for the performance of such obligations notwithstanding the issuance or denial of such permit. Notwithstanding the foregoing, if the Facility is issued a RCRA permit and that permit expressly incorporates by reference all or a part of the requirements of this Consent Order, or expressly

states that its requirements replace some or all of the requirements of this Consent Order, the Respondent shall be relieved of liability under this Consent Order for those specific obligations. Respondent shall comply with all State and Federal closure and post-closure requirements in any permit. If a permit that prescribes closure or post-closure activities is issued for the Facility, the corrective actions(s) undertaken by the Respondent pursuant to this Consent Order will be coordinated with the corrective action requirements to be taken pursuant to such permit, in a manner to be determined by U.S. EPA.

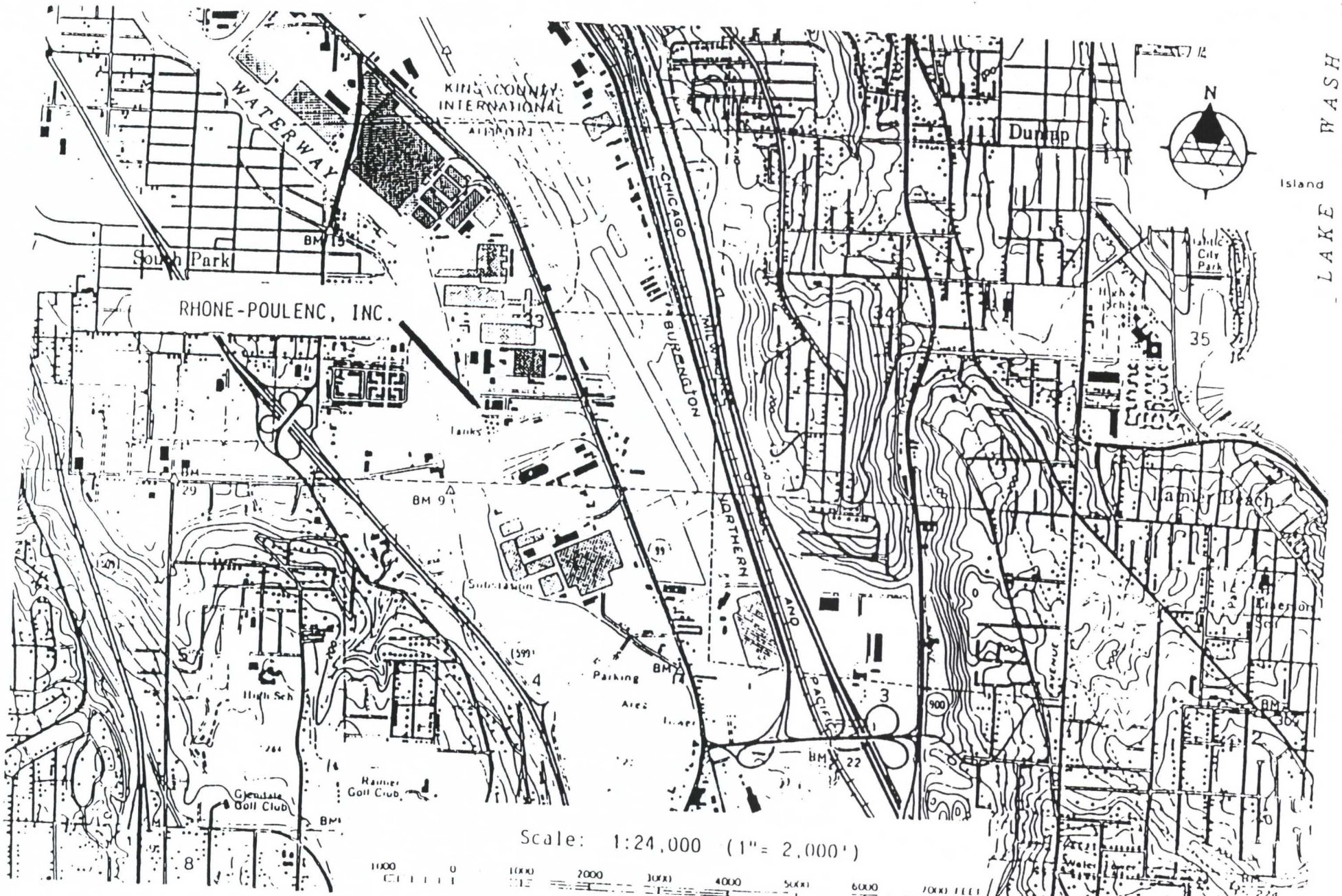
XXVIII. EFFECTIVE DATE

28.1 The effective date of this Consent Order shall be the date on which it is signed by U.S. EPA.

IT IS SO AGREED AND ORDERED:

By: _____ 4/28/93
JOHN WICHTRICH, Executive Vice President
Specialty Chemicals
Rhone Poulenc, Inc.
Date

By: _____ 5/6/93
RANDALL F. SMITH, Director
Hazardous Waste Division, Region 10
United States Environmental Protection Agency
Date



From: USGS 1949 SEATTLE SOUTH,
WASHINGTON TOPOGRAPHIC QUADRANGLE
PHOTOREVISED 1968 AND 1973

Figure 1.

Site Location Map
Rhone-Poulenc Inc.
Seattle, Washington

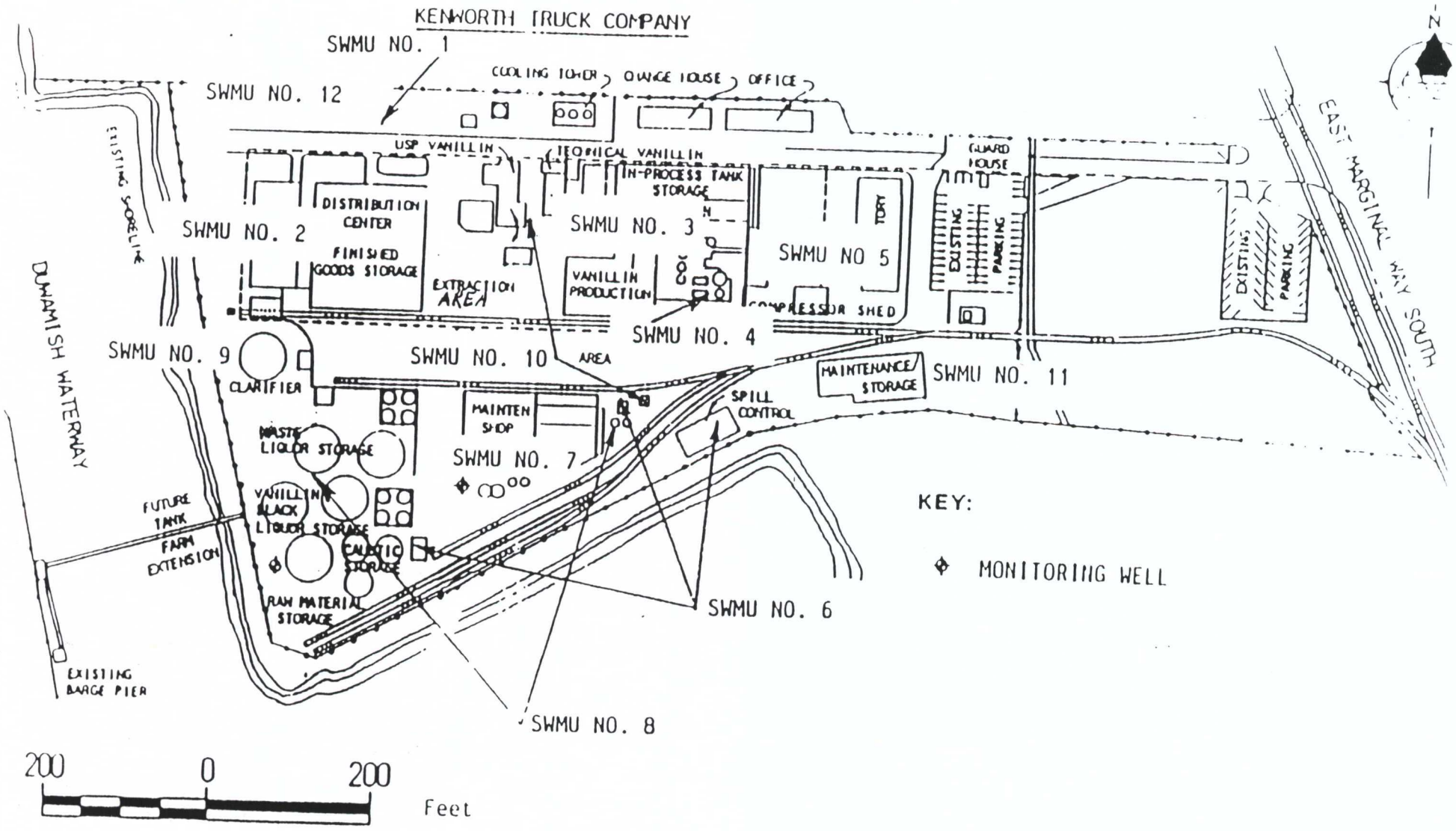
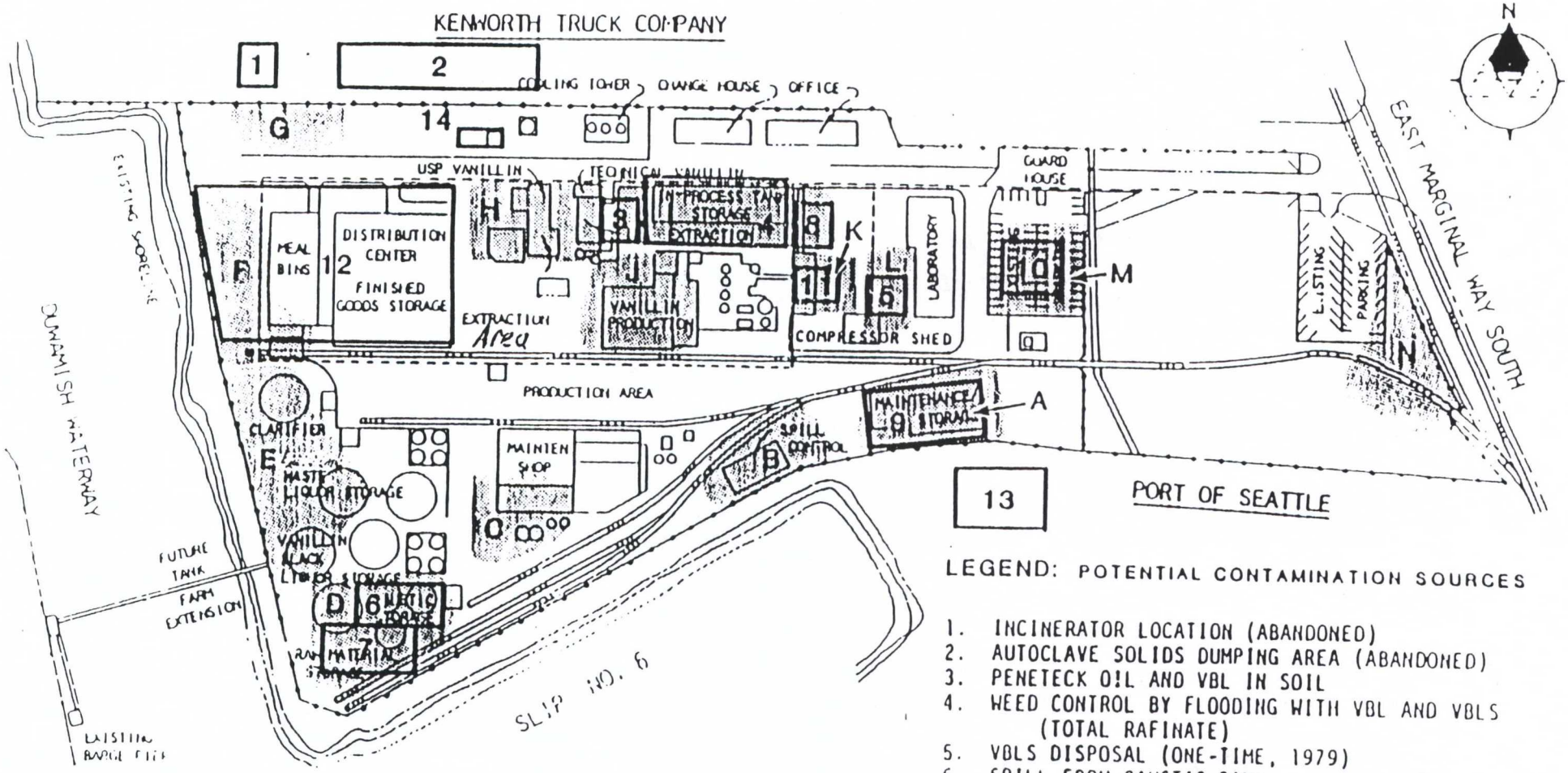


Figure 2. Detailed Site Plan and SWMU Locations



KEY:

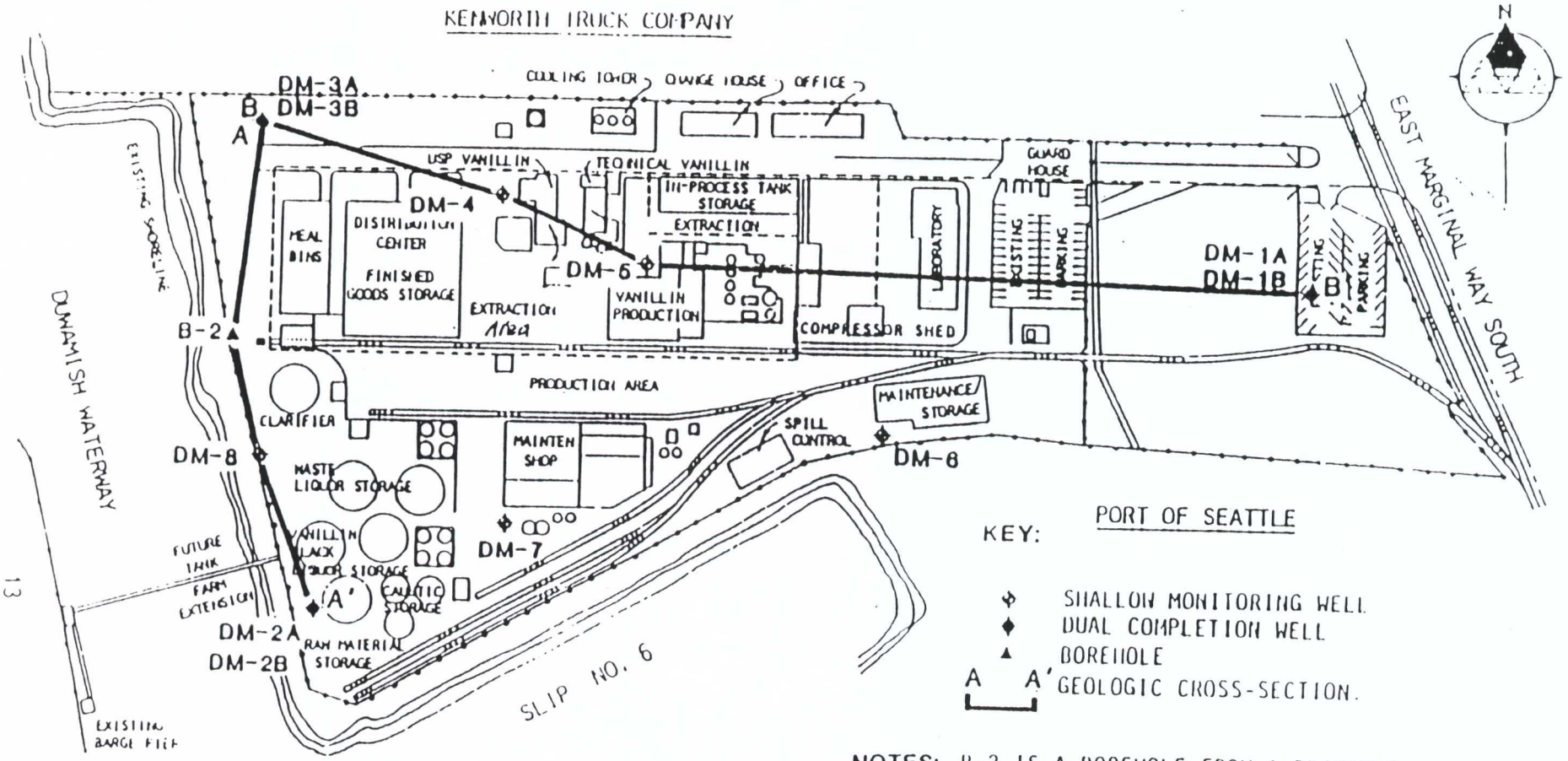
1 POTENTIAL CONTAMINATION SOURCE (SEE LEGEND) NOT NECESSARILY TO SCALE

G SOIL SAMPLING AREA

LEGEND: POTENTIAL CONTAMINATION SOURCES

1. INCINERATOR LOCATION (ABANDONED)
2. AUTOCLAVE SOLIDS DUMPING AREA (ABANDONED)
3. PENETECK OIL AND VBL IN SOIL
4. WEED CONTROL BY FLOODING WITH VBL AND VBLS (TOTAL RAFINATE)
5. VBLS DISPOSAL (ONE-TIME, 1979)
6. SPILL FROM CAUSTIC TANK
7. GUIACOL AND OIL DISPOSED ONTO GROUND (APPROXIMATELY 1953-1963)
8. SULFURIC ACID TANK SOLIDS BURIED (ONE-TIME, 1969)
9. DISPOSAL OF MAINTENANCE SHOP WASTE MATERIALS
10. DISPOSAL OF PILOT PLANT WASTES
11. HYDRAUL SPILL/LEAK AREA
12. PENTACHLOROPHENOL HANDLING AREA
13. DRUM RECLAMATION FACILITY
14. REPORTED VBLS STORAGE AREA

From: Dames & Moore, 1986, (Original figure 2-2)
Figure 3. Locations of Composite Soil Samples



From: Dames & Moore, 1986 (Original Figure 2-1)

Figure 4. Monitoring Well Location Map

ATTACHMENT A

RCRA FACILITY INVESTIGATION SCOPE OF WORK AND WORKPLAN REQUIREMENTS FOR RESPONDENT IN ADMINISTRATIVE ORDER ON CONSENT - U.S. EPA DOCKET NO. 1091-11-20-3008(h)

PURPOSE

The RFI Workplan objectives are as follows:

(1) Analyze the geology, hydrogeology and subsurface stratigraphy of the Facility area, to determine possible routes of migration of hazardous wastes and hazardous constituents that are, or may have been released at or from the Facility. This shall include the entire area of the Facility plus all areas within the lateral extent of contamination from the Facility. Respondent shall also document information on the installation date, current integrity and completion depths of all wells on the site.

(2) Characterize the nature, the direction, the vertical and areal extent, the potential to migrate, and the rate of migration of Facility releases or threats of releases of hazardous wastes and/or hazardous constituents to affected media, including soil, groundwater, air, soil gas, sediments, and surface water at the Facility. This characterization shall include:

(i) Releases or threats of releases to the soil, including the migration and potential migration of hazardous wastes and/or hazardous constituents within the soil;

(ii) Releases or threats of releases to subsurface water-bearing zones; potential migration of hazardous wastes and/or hazardous constituents;

(iii) Releases or threats of releases to and from surface water and surface water sediments, including the migration and any potential migration of hazardous wastes and/or hazardous constituents within these systems, recharge of contaminated surface water to groundwater, and seeps or discharge of contaminated groundwater to surface water, particularly, the Duwamish River Waterway.

(iv) Releases or threats of releases to the air from SWMUs and AOCs at the Facility.

(3) Determine and develop action levels for constituents of concern in soil, groundwater, air, surface water, and sediments, using the methods specified in Chapter 8 of the RFI Guidance manual (May 1989), and other applicable U.S. EPA guidances and policies. These action levels will be subject to U.S. EPA review and approval.

(4) Determine the effect of hydrogeologic conditions on the distributions of Facility hazardous wastes or constituents detected in the area to be characterized, and the contribution, if any, to the adjoining Duwamish River Waterway.

REQUIREMENTS

The RFI Workplan requirements are as follows:

(1) The RFI Workplan shall be consistent with the format and requirements set forth in EPA Document No. EPA 530/SW 89-031 "RCRA Facility Investigation (RFI) Guidance", (May 1989). A phased investigative approach is envisioned, with decision points that may eliminate the need or expand the scope for certain planned subsequent investigative or remedial phases, based on results of prior phases.

(2) The RFI Workplan shall document the procedures and provide a specific schedule that the Respondent shall use to conduct those investigations necessary to:

(i) characterize the environmental setting;

(ii) characterize sources[s] and nature of hazardous wastes and constituents;

(iii) characterize concentration, rate, and extent of contamination released at and from the Facility;

(iv) identify any additional SWMUs or AOCs;

(v) develop a Risk Assessment;

(vi) identify, and implement Stabilization/Interim Measure, and/or Corrective Measure technologies potentially applicable to the Facility;

(3) The RFI shall include provisions to sample the soil, as necessary to meet the RFI objectives. Respondent shall install soil borings, or use alternative means to characterize the following general sources and locations:

(i) Potentially contaminated sources as identified in the 1986 Dames & Moore Study;

(ii) SWMUs and AOCs, as identified in the 1990 RFA Report; and

(iii) Other contaminated locations as identified in the Landau Environmental Assessment. Respondent shall investigate each of these general contaminated locations, and other areas of concern identified in any other site assessments, to characterize the nature and extent of contamination, to U.S. EPA's satisfaction. This investigation shall provide a statistically valid and representative sampling of the areas of concern, in accordance with U.S. EPA guidance documents (including Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media, U.S. EPA 230/02-89-042), or other documents approved by U.S. EPA.

(4) The RFI Workplan shall include provisions for characterization of site hydrogeologic conditions and groundwater monitoring as necessary to meet the RFI objectives. The nature and scope of this investigation may reflect the results of

Facility investigations completed to date by Dames & Moore (1986), and Landau & Associates (1991).

(5) The RFI Workplan shall include provisions for the investigation of any contamination attributable to the Facility that may have migrated off-site, including contamination that may have become commingled with contamination from any adjacent or nearby facilities.

(6) The RFI Workplan shall include provisions for identification and characterization of any releases of Appendix IX (40 C.F.R. Part 264) hazardous constituents, as specified in this Attachment, from SWMUs and AOCs at the Facility.

(7) The RFI Workplan shall detail the methodology for assessing the potential risk to human health and the environment. This Workplan must be in accordance with U.S. EPA guidance EPA/540/1-89/002; "EPA Region 10 Supplemental Risk Assessment Guidance for Superfund," dated August 16, 1991; and "Guidelines for Developing Health-Based Cleanup Levels at RCRA Sites in Region 10," U.S. EPA guidance 910/9-92-019. The RFI Workplan must also include a detailed description of the methodology proposed to address the four main components of risk assessment: Contaminant Identification; Exposure Assessment; Toxicity Assessment; and Risk Characterization.

(8) The RFI Workplan shall contain a Current Assessment Summary Report that includes all existing past or current data and other information available to the Respondent. At a minimum, this shall include data relating to the varieties and quantities

of hazardous wastes and hazardous constituents at the Facility, past disposal practices, and results from any previous sampling events. A copy of the approved Interim Measures Workplan and its status shall be included in this Report.

(9) The RFI Workplan should consider the Data Quality Objectives ("DQOs") for each data collection activity to ensure that data of known and appropriate quality are obtained and that data are sufficient to support their intended end use(s).

ADDITIONAL RFI WORKPLAN REQUIREMENTS

The RFI Workplan shall meet the following requirements, in addition to the specific requirements and deadlines set forth in the Order:

1. The RFI Guidance in Volume I Section 2 of U.S. EPA Document Number U.S. EPA 530/SW-89-031, "RCRA Facility Investigation (RFI) Guidance", (May, 1989) shall be followed when developing the RFI Workplan.

2. The RFI Workplan shall include a Project Management Plan which will include a discussion of the technical approach and schedules.

3. The RFI Workplan shall include a Data Collection Quality Assurance Plan and a Data Management Plan, developed as per requirements set forth in Attachment "B" of the Order.

4. The RFI Workplan shall include a Sampling and Analysis Plan, developed as per requirements set forth in Attachment "B" of the Order. This Plan shall address the sampling techniques,

analytical parameters, and analytical methods to be used for characterization of all media. Rationale shall be provided to support the selection of each technique, parameter and method.

5. The RFI Workplan shall include a Community Relations Plan, to be developed in consultation with U.S. EPA, for the dissemination of information to the public regarding RFI activities and results. The Community Relations Plan shall specify the Tukwila Branch of the King County Public Library System as the repository for all submittals and reports required by this Order. The Community Relations Plan shall also specify the methodology for identifying interested members of the public that will be notified of the placement of any information in the repository. Interested members of the public shall include, but not be limited to, the owners and operators of adjacent facilities.

6. The RFI Workplan shall include provisions for carrying out investigations necessary to characterize the geology, stratigraphy and hydrogeology beneath the Facility, define the sources, nature and extent of contamination, and identify actual or potential receptors. The site investigations should include evaluating soil and groundwater quality on the terrestrial portion of the property, and sediment and seep quality on the marine portion of the property.

7. The investigations must result in data of adequate technical quality to support the development and evaluation of

corrective measures in a CMS. Specifically, the RFI Workplan shall include provisions for characterizing the following:

A. Environmental Setting

The RFI Workplan shall include provisions to collect information to supplement and verify existing information on the environmental setting at the Facility. The RFI Workplan shall provide for characterization of the following:

(1) Hydrogeology

The following shall be provided:

a. A description of regional and Facility-specific geologic and hydrogeologic characteristics affecting groundwater flow and contaminant migration beneath and from the Facility. This description shall include, but not be limited to:

i) Regional and Facility-specific stratigraphy. At a minimum, this shall include a lithologic description of stratigraphic units beneath the Facility. All soil borings shall be logged, and lithologic descriptions shall include, classification according to the Unified Soil Classification (USC) system.

ii) An identification of areas of groundwater recharge and discharge, their location and characteristics.

iii) An evaluation of the lateral continuity of stratigraphic units within the Facility, and a

correlation of these units to those of adjacent facilities to the extent information about adjacent facilities is available to RPI.

b. A description of each hydrogeologic unit which may serve as a contaminant migration pathway at or from the Facility. This description shall be based upon, at a minimum, field studies, soil and aquifer tests, and soil borings and cores. The description shall identify saturated and unsaturated units at the Facility. The description shall include, but not be limited to, the following information:

i) Hydrogeologic cross sections, indicating the location and extent of each hydrogeologic unit;

ii) An identification of each geologic formation, group of formations, or part of a formation in all aquifers capable of yielding a significant amount of groundwater to wells or springs;

iii) Hydraulic conductivity and porosity (total and effective) of each hydrogeologic unit, as necessary to characterize the impact of each such unit on groundwater flow and potential contaminant transport;

iv) An identification of zones of contrasting hydraulic conductivity that may affect the migration of contaminants, as necessary to characterize groundwater flow and potential contaminant transport;

c. A description of the regional and Facility-specific hydrogeologic flow regime in each hydrogeologic unit of concern. At a minimum, the hydrogeologic flow descriptions shall include the following:

i) Water level contour, potentiometric and/or phreatic surface maps using measurements from existing and newly installed wells (if any). These maps shall meet the following requirements:

A) Contour maps shall be prepared for each hydrogeologic unit and reflect tidal influences.

B) Contour maps shall reflect the presence and influence of any non-aqueous phase liquids. Any measurements necessary to correct water levels for the presence of these liquids shall be taken at the time of water level measurements.

ii) Tabular or graphical presentation of the magnitude of vertical gradients;

iii) Discussions of the flow system, including the vertical and horizontal components of flow, as described through flow vectors or the construction of flow nets, as necessary to identify and characterize potential contaminant transport pathways;

iv) Identification and documentation of changes in the hydraulic flow regime due to tidal or seasonal influences;

v) An identification and interpretation of inferred hydraulic interconnection between the hydrogeologic units of concern and down-gradient areas potentially impacted by releases from the Facility, including quantification of recharge to such units of concern;

vi) Hydrographs depicting the variation of water levels in on-site wells, over the period of water level measurements;

vii) An evaluation and investigation of any groundwater mounding beneath the site that EPA deems necessary;

viii) A specific evaluation of groundwater from site releases, particularly around locations of wells B1A, DM-4, DM-5 and DM-8;

ix) An identification of the location and amount of groundwater recharge and discharge, including discharges of groundwater that flows at, or from the Facility to the surface in drainage ditches, and the Duwamish Waterway.

d. A description of human influences, including off-site structures and conditions, that may affect the hydrogeology and contaminant migration at, or from the site. The descriptions shall specifically identify the following:

i) Active and inactive local water withdrawal wells with the potential to affect groundwater flow at the Facility, and approximate pumping schedules;

ii) Structures including, but not limited to, gas and electric utilities, pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, sewer pipes, stormwater drains, and retention areas; and

iii) The areal and vertical extent of the MW-G5 Plume Area and the Sector B Area, where toluene used in the production of vanillin is inferred to be present in both the soil and groundwater systems.

iv) The areal and vertical extent of the Black Liquid Plume Area where shallow monitoring wells encountered a dark brown/black liquid resembling the black sulfite liquor, and the Sector H Area, where elevated levels of TOC and metals were detected in the groundwater.

(2) Soils

a. The RFI shall include characterization of the soils within the MW-G5 Plume Area, the Sector B Area, and in the vicinity of other known and/or suspected contaminant release areas. Such characterization shall include all factors necessary and appropriate to define the potential for contaminant migration and to evaluate contaminant fate and transport in the soil system.

Examples of the descriptions and measurements which may be required include:

i. Soil descriptions in accordance with the Unified Soil Classification system;

ii. Surface soil distribution;

iii. Hydraulic conductivity (saturated);

iv. Bulk density;

v. Porosity;

vi. Cation exchange capacity (SEC);

vii. Soil organic matter content;

viii. Soil PH;

ix. Particle size distribution based on sieve analyses;

x. Moisture content

xi. Presence of stratification or soil structures that may affect unsaturated flow;

xii. Infiltration;

xiii. Evapo-transpiration;

xiv. Storage capacity;

xv. Mineral content;

xvi. Contaminant attenuation or absorption capacity and mechanisms;

xvii. Color photographs of all sampled intervals, with a size scale present in each photograph.

b. All soil borings conducted under the RFI Workplan shall include logging for a detailed lithologic description. Unless otherwise specified in the Order, soil characterization shall

occur for each distinct soil type in all borings. All soil borings shall be abandoned using bentonite or bentonite grout.

B. Contaminant Characterization

The RFI Workplan shall include requirements to collect analytical data on groundwater, soils, air, surface water, and sediment contamination at or from the Facility and other areas affected by the Facility operations. This data shall be sufficient to define the origin, nature and extent, direction, and the rate of contaminant migration. Data shall include time and location of sampling, environmental conditions during sampling (including tidal levels for groundwater sampling), media sampled, contaminant concentrations, and the identity of the individuals performing the sampling and analysis. Respondent shall address the following types of contamination at or from the Facility:

(1) Groundwater Contamination

a. The RFI Workplan shall include requirements to characterize any groundwater contamination at or from the Facility. This investigation shall, at a minimum, provide the following information:

i) A description of the horizontal and vertical extent of any immiscible or dissolved contaminants originating from the Facility, including concentration profiles of all parameters identified in Section C, item 3 of this Attachment;

ii) The estimated rate of contaminant migration;

iii) An evaluation of factors influencing the migration of contaminants;

iv) A prediction of future contaminant migration, and a justification of any assumptions, calculations or models used to develop the prediction;

v) The contribution of contaminated soils to groundwater contamination.

vi) The hydraulic interconnection between the respective aquifers, and the potential for cross contamination between aquifers.

b. The RFI Workplan shall document the procedures to be used in making the above determinations (e.g., well design, well construction, geophysical investigative methods, groundwater modelling, etc.).

c. The RFI Workplan shall also, include provisions for the installation of additional groundwater monitoring wells, if determined to be necessary based on the results of the initial investigation to further delineate the nature and extent of any contamination at or from the Facility. These requirements shall define the criteria for placement of additional wells, including the design, location and installation procedures to be used to meet the objectives of the RFI. The proposed groundwater monitoring system and monitoring well network shall meet the following requirements:

(i) The network shall contain upgradient wells or functional equivalents capable of yielding samples

representative of background water quality in the water-bearing zones of concerns that are not affected by releases of hazardous wastes and/or hazardous constituents from any solid waste management unit at the Facility. The number and location of the wells must be sufficient to characterize the spatial variability of background water quality.

(ii) The network shall contain downgradient wells capable of detecting any release to groundwater in water bearing zones of concern of hazardous waste and/or hazardous constituents from solid waste management units at the Facility. The number and location of these wells must be sufficient to characterize the nature and extent of any such releases.

(iii) The network shall be capable of operating for a period of time sufficient to provide representative groundwater samples during the RFI and the evaluation and implementation of any corrective measures required at the Facility.

(iv) All existing wells at the Facility included in the monitoring network that cannot meet these requirements shall be replaced and/or abandoned, or supplemented by new monitoring wells.

(v) The system shall include provisions to evaluate the results of sampling and analysis

throughout the investigation, and to modify the groundwater monitoring network as necessary.

(vi) Respondent shall follow the guidelines and specifications in the Technical Enforcement Guidance Document (U. S. EPA OSWER 9950.1. September 1986 "TEGD") and Chapter 173-160 WAC, in completing the items discussed above.

The RFI Workplan shall include provisions for measuring water level measurements in all wells currently present (including all wells newly constructed under this Order, if any), at the Facility, on a quarterly basis, or as determined by U.S. EPA.

(vii) Wells screened shall be designed to effectively detect contamination that may be present. Respondent shall be responsible for assuring start cards and boring logs are reported in accordance with WAC 173-160.

d. The RFI Workplan shall include provisions to provide the following information for all groundwater monitoring wells used to meet the RFI requirements:

i) A description and map showing well locations, including each well's surveyed surface reference point and vertical reference point elevation. Wells shall be surveyed using, or existing well elevations converted to, the National Geodetic Vertical Datum (NGVD), 1929, to an accuracy of within 0.01 foot in accordance with

the TEGD. Horizontal surveying accuracy shall be within 1.0 feet;

ii) The boring and casing diameter and depth of each well;

iii) Specification of well intake design, including a screen slot type, size, and length, filter pack materials, and method of filter pack emplacement;

iv) Specification of well casing and screen materials. Well construction materials shall be chosen based on parameters to be monitored, and the nature of contaminants that could potentially migrate from the Facility. Well materials shall: (1) minimize the potential of adsorption of constituents from the samples, and (2) not be a source of sample contamination. Wells shall be constructed for the purpose of long term monitoring in accordance with Chapter 173-160 WAC;

v) Documentation of methods used to seal the well from the surface to prevent infiltration of water into the well and downward migration of contaminants through the well annulus;

vi) Description of well development methods and procedures; including well installation, well screen interval, well log, and soil log for all wells;

vii) Documentation of all well design and installation parameters specified in Section 3.5 of the TEGD; and

viii) Documentation that all borings, well installations, and well abandonment procedures comply with Chapter 173-160 WAC, and were conducted by a licensed driller.

ix) Any analytical data obtained from groundwater sampling of existing wells.

e. The RFI Workplan Sampling and Analysis Plan shall include the following elements specific to the groundwater monitoring network:

i) Parameters for chemical analyses of groundwater samples. Selected samples subject to U.S. EPA review and approval from the initial round of sampling shall be analyzed for all constituents specified in Appendix IX of 40 C.F.R. Part 264. Parameters for subsequent sampling events shall be selected, subject to U.S. EPA review and approval, based on the results of initial groundwater sampling and analysis, and upon the composition of wastes that were managed at the facility. The rationale for selection of all parameters shall be provided. All sampling rounds shall include analysis for heavy metals.

ii) An approved sampling schedule for groundwater monitoring. This schedule shall include collection of groundwater samples for chemical analysis from wells to characterize temporal trends and variations in groundwater contaminant migration.

iii) Provisions for sampling and reporting of the occurrence, amount, thickness, and composition of any non-aqueous phase liquids encountered in all monitoring wells.

(2) Soil Contamination

a. The RFI Workplan shall include requirements to characterize the contamination of the soil at, and from the Facility, and any contaminant releases. The Workplan shall include provisions to extend this characterization as necessary both vertically and horizontally to determine the full extent of soil contamination. Soil sampling shall occur at the following locations, and where necessary to meet the RFI objectives:

i) At all general locations specified in the Order, particularly within Sector B and the MW-G5 Plume Area;

ii) From selected soil borings as necessary to determine the full extent of contamination. This sampling shall be done at 2.5 feet intervals, or at other intervals specified by U.S. EPA. If U.S. EPA

determines that contamination has impacted the Lower Aquifer, or existing data or field observations so indicate, soil borings and sampling shall be extended vertically, as necessary to determine the full extent of contamination;

iii) At all stratigraphic unit contacts;

iv) At the location of any preferred routes of contaminant migration;

v) Where field observation or testing indicate greater concentrations of contaminants relative to the nearest strata that would otherwise be sampled.

b. The RFI Workplan Sampling and Analysis Plan shall document the following for soil sampling:

i) The sampling techniques and equipments to be used;

ii) The parameters for chemical analysis, and the rationale for their selection.

c. The RFI Workplan shall provide documentation of the following information, including any associated calculations, derivations, or assumptions:

i) A description of the vertical and horizontal extent of contamination for all 40 C.F.R. Part 264, Appendix IX contaminants detected in the soil at the Facility.

ii) A description of contaminant properties and contaminant/soil interactions within the contaminant

source area and plume. Examples of properties and interactions which may be required include contaminant solubility, speciation, adsorption, leachability, retardation coefficients, biodegradability, hydrolysis, photolysis, oxidation, soil cation exchange capacity, and other factors that might affect contaminant migration and transformation. This information shall be presented in sufficient detail to fulfill the objectives of the RFI.

iii) Concentrations of each contaminant in all soil samples.

iv) The rate and direction of contaminant migration and a prediction of future contaminant migration rate, including considerations of releases from soils to groundwater.

(3) Air Releases

a. The RFI Workplan shall include requirements for characterizing air releases of hazardous constituents from solid waste management units and areas of concern at the Facility.

b. Specification of activities proposed to determine the rate of releases from the units, and to estimate exposures and risks to receptors and potential receptors of hazardous constituents from air emissions.

c. The RFI Workplan shall include provisions to determine the following:

i) The composition and concentration of hazardous constituents present in the air over the units and at additional locations identified in the RFI Workplan;

ii) The estimated rates of release of hazardous constituents from the pollutant sources and bases for determining the estimates, such as observed concentrations of constituents at the sources, physical and chemical characteristics of waste constituents, meteorological data, and any theoretical assumptions, analytical techniques or models used to arrive at the estimates; and

iii) The predicted exposures and risks of harmful effects to receptors of air emissions of hazardous constituents from the specified sources. All calculations, algorithms, existing and new information, and all assumptions used to estimate the effects of air emissions shall be documented in the findings.

(4) Surface Water Contamination

The RFI Workplan shall include requirements to determine the nature and extent of surface water and sediment contamination due to releases to surface water at or from the Facility and due to discharges of contaminated groundwater at or from the Facility. The Workplan shall specify the methods and procedures to be used to characterize the following:

a. The contribution of contaminated groundwater discharges to surface water at, and downgradient from the Facility, including discharges of contaminated groundwater to surface drainage ways and surface waters, and discharges of groundwater to subsurface drainage facilities for stormwater management at, or from the Facility.

b. The contribution of contaminated runoff at or from the Facility to surface water, and through any discharges from stormwater collection and management controls structures.

c. The nature and extent of surface water and sediment contamination due to contributions of hazardous wastes and/or hazardous constituents from the Facility, including those sources identified above.

d. The RFI Workplan shall include specifications for the following aspects of the surface water contamination investigation:

i) The methods and equipment used to collect surface water and sediment samples for analysis.

ii) The locations for surface water and sediment sampling, and the rationale for their selection (e.g., groundwater discharge areas identified through flow net construction performed for the hydrogeologic characterization of the Facility and potentially affected downgradient areas). At a minimum, sediment

samples shall be taken from Facility discharges, outfalls, outlets, catch basins or manholes.

iii) Surface water and sediment samples shall be analyzed for all priority pollutant metals, total petroleum hydrocarbons, total solids, and those Appendix IX volatile and semi-volatile organic compounds which are or have been present at the Facility. Analytical methods must be those specified in Test Methods For Evaluating Solid Waste - Physical/Chemical Methods, U.S. EPA Publication Number SW 846, Methods for Chemical Analysis of Water and Wastes, U.S. EPA Report 600/4-79-0202, March 1983, or alternate methods approved by U.S. EPA, and which Respondent has demonstrated will perform equal or better than SW-846 methods under conditions expected in the investigation.

C. Reporting

The RFI Workplan shall specify the outline and format for the RFI Report to present the findings of the investigation. The RFI Workplan shall specify groundwater data reporting procedures which are consistent with U.S. EPA Region X Groundwater Data Management System. These specifications shall include, but are not limited to the following:

1. Contour maps of groundwater concentrations for all contaminants detected at the Facility, and affected down-gradient areas;

2. Flow net constructions of maps and cross sections showing surface discharges of groundwater that flows beneath the Facility, and delineating the extent of discharge of contaminated groundwater, and showing areas of groundwater discharge that may become contaminated due to subsurface contaminant migration.

3. Maps and cross sections depicting the estimated migration rates for contaminants in groundwater, considering advection, dispersion, adsorption, and degradation processes. The migration evaluations shall be prepared for two species from each of the following classes of compounds that are identified as originating at or migrating from the Facility: volatile organic compounds, base neutral and acid extractable organic compounds, metals and cyanide compounds. In general, the species selected shall be the most mobile contaminants from each class that have been, or are likely to be, released from the Facility.

The RFI Workplan shall describe all input data algorithms, estimates, assumptions, boundary conditions, sensitivity analyses, and model calibration procedures used to derive these predictions of groundwater contaminant migration;

4. The nature and extent of surface water and sediment contamination due to releases from the Facility, including maps depicting the concentration distribution over the sample locations;

5. An assessment of the fate and transport of contaminants in surface water and sediments, including maps depicting the maximum extent of exposure of aquatic organisms to contaminant concentrations at levels that may have adverse impacts, to the extent that these impacts can be distinguished from ambient surface water and sediment quality in the area.

ATTACHMENT B

SAMPLING AND ANALYSIS AND DATA MANAGEMENT PROGRAM REQUIREMENTS FOR RESPONDENTS IN ADMINISTRATIVE ORDER ON CONSENT U.S EPA DOCKET NO. 1091-11-20-3008(h)

Each Verification Investigation or RCRA Facility Investigation Workplan shall include a plan to document all monitoring procedures (including all sampling, field measurements, and sample analysis performed during the investigation to characterize the environmental setting, source of contamination, and concentration of contaminants) so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented. The plan shall include the following:

A. Data Quality Assurance Plan

1. Data Collection Strategy

The strategy section of the Data Quality Assurance Plan shall include, but not be limited to, the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses; and

b. Description of methods and procedures to be used to assess the precision, accuracy, and completeness of the measurement data;

2. Sampling

The Sampling section of the Data Collection Quality Assurance Plan shall discuss:

a. Sampling methods including, identification of sampling equipment, purging procedures, and decontamination procedures to be used;

b. Criteria for selecting appropriate sampling locations, depths, etc.;

c. Criteria for providing a statistically sufficient number of sampling sites;

d. Methods for measuring all necessary ancillary data;

e. Criteria for determining conditions under which sampling should be conducted;

f. Criteria for identifying which parameters are to be measured, and criteria for determining where specific parameters will be measured;

g. Criteria for identifying the type of sampling (e.g., composites v. grabs) and number of samples to be collected;

h. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;

i. Methods and documentation of field sampling operations and procedures, including:

(1) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters and adsorbing reagents);

(2) Procedures and forms for recording the exact location, sampling conditions, sampling equipment and visual condition of samples;

(3) Documentation of specific sample preservation method;

(4) Calibration of field devices;

(5) Collection of replicate samples;

(6) Submission of field-biased blanks, where appropriate;

(7) Potential interferences present at the facility;

(8) Field equipment listing and sample containers;

(9) Sampling order; and

(10) Decontamination procedures.

j. Selection of appropriate sample containers;

k. Sample preservation methods; and

l. Chain-of-custody procedures, including:

(1) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and

(2) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate field measurement locations, depths, etc.;

b. Providing a statistically sufficient number of field measurements;

c. Measuring all necessary ancillary data;

d. Determining conditions under which field measurements should be conducted;

e. Determining which media are to be addressed by appropriate field measurements (e.g., groundwater, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of field measurement and length of field measurements period; and

h. Documenting field measurement operations and procedures, including:

(1) Procedures and forms for recording raw data and the exact location, tidal onditions, time, and sampling conditions;

(2) Calibration of field devices;

(3) Collection of replicate measurements;

(4) Submission of field-biased blanks, where appropriate;

(5) Potential interferences present at the facility;

(6) Field equipment listing; and

(7) Decontamination procedures.

4. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

(1) Certification that all samples obtained pursuant to this Order for analysis will be delivered to a responsible person at the recipient laboratory who is authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

(2) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracing report sheets; and

(3) Specification of chain-of-custody procedures for sample handling, storage, and dispersement for analysis.

b. Sample storage procedures and storage times;

c. Sample preparation methods;

d. Analytical procedures, including:

(1) Scope and application of the procedure;

(2) Sample matrix;

(3) Potential interferences;

(4) Precision and accuracy of the methodology; and

(5) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation, and reporting;

g. Internal quality control checks, laboratory performance, and systems audits and frequency, including:

(1) Method blank(s);

(2) Laboratory control sample(s);

(3) Calibration check sample(s);

(4) Replicate sample(s);

(5) Matrix-spiked sample(s);

(6) "Blind" quality control;

(7) Control charts;

(8) Surrogate samples;

(9) Zero and span gases; and

(10) Reagent quality control checks.

B. Data Management Plan

Respondent shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and establish data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location including surveyed horizontal coordinates and elevation of the sample location, and sample or measurement type;

c. Sampling or field measurement raw data;

d. Laboratory analysis ID number;

e. Result of analysis (e.g., concentration);

f. Elevations of reference points for all groundwater level measurements, including water level elevation, top of casing elevation, and ground surface elevation; and

g. Magnetic computer records of all groundwater, soil, surface water, and sediment analytical data meeting the format specifications of EPA Region 10 groundwater data management system.

C. Data Reporting

Respondent shall provide notification of availability to EPA and Ecology of all data obtained pursuant to this order within thirty (30) days of receipt by Respondent, or after completion of quality assurance/quality control activities, if applicable. This notification requirement shall also apply to any other information obtained from activities conducted, or data obtained, by Respondent that may influence activities pursuant to this Order.

1. Tabular Displays

The following data shall be presented in tabular displays, as appropriate:

a. Unsorted (raw) data;

b. Results for each medium and each constituent monitored;

c. Data reduction for statistical analysis;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data.

2. Graphical Displays

At a minimum, the following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

a. Displays of sampling location and sampling grid;

b. Identification of boundaries of sampling area and areas where more data are required;

c. Displays of concentrations of contamination at each sampling location;

d. Displays of geographical extent of contamination;

e. Areal and vertical displays of contamination concentrations, concentration averages, and concentration maxima, including isoconcentration maps for contaminants found in environmental media at the Facility;

f. Illustrations of changes in concentration in relation to distance from the source, time, depth, or other parameters;

g. Identification of features affecting intramedia transport and identification of potential receptors;

h. For each round of groundwater level measurements, maps showing the distribution of head measurements in each aquifer at a scale of one inch equals 50 feet and a contour interval of one-half foot; and

i. For each well, provide a hydrograph that shows the distribution of water level measurements taken during the RFI for the time interval of the investigation.

ATTACHMENT C

SCOPE OF WORK FOR THE CORRECTIVE MEASURES STUDY REQUIREMENTS FOR RESPONDENT IN ADMINISTRATIVE ORDER ON CONSENT U.S. EPA DOCKET NO. 1091-11-20-3008(h)

PURPOSE:

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate corrective action alternatives and to recommend corrective measure(s) to be taken at the Facility.

SCOPE:

The scope of the CMS will depend on the needs at the Facility as determined by the RFI; U.S. EPA may determine that an abbreviated CMS is sufficient for the Facility. In general, the CMS will consist of the following four tasks:

Task 1. Identification and Development of the Corrective Measure Alternatives

- A. Description of Current Situation
- B. Establishment of Corrective Action Objectives
- C. Screening of Corrective Measures Technologies
- D. Identification of the Corrective Measure Alternatives

Task 2. Evaluation of the Corrective Measure Alternatives

- A. Technical/Environmental/Human Health/Institutional
- B. Cost Estimate

Task 3. Justification and Recommendation of the Corrective Measure(s)

- A. Technical
- B. Environmental
- C. Human Health

Task 4. Reports

A. Draft

B. Final

TASK 1: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVES

Based on the results of the RFI, Respondent shall identify, screen, and develop the alternatives for removal, containment, treatment, and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

Respondent shall submit an update to the information describing the current situation at the Facility and the known nature and extent of the contamination as documented by the RFI. Respondent shall also make a Facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

Respondent, in conjunction with U.S. EPA, shall establish Facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, U. S. EPA guidance, and the requirements of applicable federal and state statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 40 C.F.R. § 264.100.

C. Screening of Corrective Measure Technologies

Respondent shall review the results of the RFI and identify technologies which are applicable at the Facility. Respondent shall screen corrective measure technologies and any supplement technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and Facility-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

Facility, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Facility Characteristics:

Facility data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by Facility characteristics should be eliminated from further consideration.

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by waste characteristics at the Facility may be eliminated from consideration. Waste characteristics particularly affect the

feasibility of on-site methods, direct treatment methods, and land disposal; and

3. Technology Limitations

During the screening process the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process.

D. Identification of Corrective Measure Alternatives

Respondent shall develop the corrective measure alternative or alternatives based on the corrective action objectives and analysis of corrective measure technologies. Respondent shall rely on engineering practice to determine which of the identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. Respondent shall document the reasons for excluding technologies.

TASK 2: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

Respondent shall describe each corrective measure alternative that passes through the initial screening in Task 1 and evaluate each corrective measure alternative and its components, as deemed

necessary by U.S. EPA. The evaluation shall be based on technical, environmental, human health, and institutional concerns. Respondent shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

Respondent shall provide a description of each corrective measure alternative, as deemed necessary by U.S. EPA, which may include, but is not limited to, an evaluation of the following factors:

1. Technical

Respondent shall evaluate each corrective measure alternative, as deemed necessary by U.S. EPA, based on performance, reliability, implementability, and safety.

a. Respondent shall evaluate performance based on the effectiveness and useful life of the corrective measure:

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective

measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technologies, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. Respondent shall provide information on the reliability of each corrective measure, as deemed necessary by U.S. EPA, including their operation and maintenance requirements and their demonstrated reliability:

i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activity should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. Respondent should evaluate: whether the technologies have been used effectively under similar conditions; whether the combination of technologies have been used together effectively; whether

failure of any on technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the Facility.

c. Respondent shall describe the implementability of each corrective measure, as deemed necessary by U.S. EPA, including the relative ease of installation (constructability) and the time required to achieve a given level of response;

i) Constructability is determined by conditions both internal and external to the Facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the Facility (e.g., remote location v. a congested urban area). Respondent shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure; and, the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. Respondent shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental

Respondent shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the Facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short and long-term beneficial and adverse effects of the response alternative; adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

Respondent shall assess each alternative in terms of the extent of which it mitigates short and long-term exposure to any residual contamination and protects human health both during and after implementation of corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminations and the reduction over time. For management of mitigation measures, the relative reduction of impact

will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to U.S. EPA.

4. Institutional

Respondent shall assess relevant institutional needs for each alternative. Specifically, the effects of federal, state, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alterative.

B. Cost Estimate

Respondent shall develop an estimate of the cost of each corrective measure alternative (and for each phase of segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

TASK 3: JUSTIFICATION AND RECOMMENDATION OF CORRECTIVE MEASURES

Respondent shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternatives to be understood easily. Trade-offs among health risks, environmental effects, and other pertinent factors shall be highlighted. U.S. EPA will select the corrective measure(s) to be implemented based on the results of Tasks 2 and 3. At a minimum, the following criteria will be used to justify the final corrective measure(s).

A. Technical

1. Performance -- Corrective measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability -- Corrective measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and Facility conditions similar to those anticipated will be given preference;

3. Implementability -- Corrective measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety -- Corrective measures which post the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

Corrective measures must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure with time are preferred.

C. Environmental

Corrective measures posting the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

TASK 4: REPORTS

Respondent shall prepare a Corrective Measure Study Report presenting the results of Tasks 1 through 3 and recommending a corrective measure alternative.

A. Draft

The Report shall, as deemed necessary by U.S. EPA, include at a minimum:

1. A description of the Facility

   a. Site topographic map and preliminary layouts

2. A summary of the corrective measure(s):

   a. Description of the corrective measure or measures and rationale for selection;

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

   d. General operation and maintenance requirements; and

   e. Long-term monitoring requirements.

3. A summary of the RFI and impact on the selected corrective measure or measures:

   a. Field studies (groundwater, surface water, soil, air); and

   b. Treatability studies (bench scale, pilot scale).

4. Design and Implementation Precautions:

   a. Special technical problems;

   b. Additional engineering data required;

   c. Permits and regulatory requirements;

   d. Access, easement, right-of-way;

   e. Health and safety requirements; and

   f. Community relations activities.

5. Cost Estimates and Schedules:

   a. Capital cost estimate;

   b. Operation and maintenance cost estimate; and

   c. Project schedule (design, construction, operation).

B. Final

Respondent shall finalize the Corrective Measure Study Report incorporating comments received from U.S. EPA on the Draft Corrective Measure Study Report, as set forth on the Order.

ATTACHMENT D

SCOPE OF WORK FOR THE CORRECTIVE MEASURE IMPLEMENTATION PLAN FOR REQUIREMENTS FOR RESPONDENT IN ADMINISTRATIVE ORDER ON CONSENT - U.S. EPA DOCKET NO. 1091-11-20-3008(h)

PURPOSE:

The purpose of this Corrective Measure Implementation (CMI) program is to design, construct, operate, maintain, and monitor the performance of the corrective measure(s) selected to protect human health and the environment.

SCOPE:

The scope of the Corrective Measure Implementation Plan will depend on the needs of the Respondent Facility, as determined by the Corrective Measures Study. As such, the Corrective Measure Implementation program will include the following four tasks and subtasks as deemed appropriate by U.S. EPA:

Task 1. Corrective Measure Implementation Plan

- A. Program Management Plan
- B. Community Relations Plan

Task 2. Corrective Measure Design

- A. Design Plans and Specifications
- B. Operation and Maintenance Plan
- C. Cost Estimate
- D. Project Schedule
- E. Construction Quality Assurance Objectives
- F. Health and Safety Plan
- G. Design Phases

Task 3. Corrective Measure Construction

- A. Responsibility and Authority

B. Construction Quality Assurance Personnel Qualifications

C. Inspection Activities

D. Sampling Requirements

E. Documentation

Task 4. Reports

A. Progress

B. Draft

C. Final

TASK 1: CORRECTIVE MEASURE IMPLEMENTATION PLAN

Respondent shall prepare a Corrective Measure Implementation Plan. This program may include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as the work is performed to focus efforts on a particular problem. The Program Plan includes the following:

A. Program Management Plan

Respondent shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of selected corrective measure(s). The plan shall document the responsibility and authority of all organizations and key personnel involved with the implementation. The Program Management Plan will also include a description of qualifications of key personnel directing the Corrective Measure Implementation program, including contractor personnel.

B. Community Relations Plan

Respondent may be required to revise the Community Relations Plan to reflect changes in the level of concern or information needs of the community for design and construction activities.

1. Activities which U.S. EPA determines must be conducted during the design stage may include the following:

a. Revise the Facility Community Relations Plan to reflect knowledge of citizen concerns and involvement at this stage of the process; and

b. Prepare and distribute a public notice and an updated fact sheet at the completion of engineering design.

2. Depending on the level of citizen interest, activities that may be conducted during the construction stage could range from group meetings to fact sheets on the technical status.

TASK 2: CORRECTIVE MEASURE DESIGN

Respondent shall prepare final construction plans and specifications to implement the corrective measure(s) at the Facility as defined in the CMS and as required by U.S. EPA.

A. Design Plans and Specifications

Respondent shall develop clear and comprehensive design plans and specifications which may include, but are not limited to, the following:

1. Discussion of the design strategy and the design basics, including:

a. Compliance with all applicable or relevant environmental and public health standards; and

b. Minimization of environmental and public impacts.

2. Discussion of the technical factors of importance as appropriate including:

a. Use of currently accepted environmental control measures and technology;

b. The constructability of the design; and

c. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and justification of these assumptions;

4. Discussion of the possible sources of error and references to possible operation and maintenance problems;

5. Drawings of the proposed design;

6. Tables listing equipment and specifications;

7. Appendices including:

a. Sample calculations (one example presented and explained clearly for significance or unique design calculations);

b. Results of laboratory or field tests.

B. Operation and Maintenance Plan

Respondent shall prepare an Operation and Maintenance Plan to cover both implementation and long-term maintenance of the corrective measures. The plan shall be composed of some or all of the following elements as deemed necessary by U.S. EPA:

1. Description of potential operating problems:

   a. Description of analysis of potential operation problems;

   b. Sources of information regarding problems; and

   c. Common and/or anticipated remedies.

2. Description of alternate operation and maintenance:

   a. Should systems fail, alternate procedures to prevent undue hazard; and

   b. Analysis of vulnerability and additional resource requirements should a failure occur.

3. Safety Plan:

   a. Description of precautions, or necessary equipment, etc., for site personnel; and

   b. Safety tasks required in event of systems failure.

4. Description of equipment; and

   a. Equipment identification;

   b. Installation of monitoring components;

   c. Maintenance of site equipment; and

   d. Replacement schedule for equipment and installed components.

5. Records and reporting mechanisms.

   a. Daily operating logs;

   b. Laboratory records;

   c. Records for operating costs;

   d. Mechanism for reporting emergencies; and

   e. Personnel and maintenance records.

An initial Draft Operation and Maintenance Plan shall be submitted simultaneously with the Pre-final Design Document submission and the Final Operation and Maintenance Plan with the Final Design Documents.

C. Cost Estimate

Respondent shall develop cost estimates for the purpose of assuring that the Facility has the financial resources necessary to construct and implement the corrective measure(s). The cost estimate developed in the CMS shall be refined to reflect the more detailed/accurate design plans and specifications being developed. The cost estimate shall include both capital and operation and maintenance costs. An Initial Cost Estimate shall be submitted simultaneously with the Pre-final Design submission and the Final Cost Estimate with the Final Design Document.

D. Project Schedule

Respondent shall develop a Project Schedule for construction and implementation of the corrective measure(s) which identify timing for initiation and completion of critical path tasks. Respondent shall identify projected dates for completion of the project and major interim milestones. An Initial Project Schedule may be required to be submitted simultaneously with the Pre-final Design Document submission and the final Project Schedule with the Final Design Document.

E. Construction Quality Assurance Objectives

Respondent shall identify and document the objectives and framework for the development of a construction quality assurance

program including, appropriate items such as: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and documentation.

F. Data Collection Quality Assurance Plan

Respondent shall develop the Data Collection Quality Assurance Plan to address the data collection activities to be performed at the Facility to implement the corrective measure(s).

G. Data Management Plan

Respondent shall develop the Data Management Plan to address the data collected at the Facility during the implementation of corrective measure(s).

H. Health and Safety Plan

Respondent shall develop the Health and Safety Plan to address the activities to be performed at the Facility to implement the corrective measure(s).

I. Design Phases

The design of the corrective measure(s) may include the phases outlined below.

1. Preliminary Design

Respondent may be required to submit the preliminary design when the design effort is approximately 30 percent complete. At this stage, if required by U.S. EPA, Respondent shall have field verified the existing conditions of the Facility. The preliminary design shall reflect a level of effort such that the technical requirements of the project have been addressed and outlined so that they may be reviewed to determine if the final

design will provide operable and usable corrective measure(s). Supporting data and documentation shall be provided with the design documents defining the functional aspects of the program. The preliminary construction drawings by Respondent shall reflect organization and clarify. The scope of the technical specifications shall be outlined in a manner reflecting the final specifications. Respondent shall include with the preliminary submission, design calculations reflecting the same percentage of completion as the designs they support.

2. Intermediate Design

Complex project design may necessitate U.S. EPA's review of the design documents between the preliminary and the pre-final/final design. At the discretion of U.S. U.S. EPA, a design review may be required at 60 percent completion of the project. This intermediate design submittal should include the same elements as the pre-final design.

3. Correlating Plans and Specifications

General correlation between drawings and technical specifications, is a basic requirement of any set of working construction plans and specifications. Before submitting the project specifications, Respondent shall:

a. Coordinate and cross-check the specifications and drawings; and

b. Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

These activities shall be completed prior to any submittals to U.S. EPA.

4. Equipment Start-up and Operator Training

As appropriate for the corrective measure(s), the Respondent shall prepare, and include in the technical specifications governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, start-up, and operation of the treatment systems, and training covering appropriate operations procedures once the start-up has been successfully accomplished.

5. Additional Studies

Corrective Measure Implementation may require additional studies to supplement the available technical data. At the direction of U.S. EPA for any such studies required, Respondent shall furnish all services, including field work as required, materials, supplies, plant, labor, equipment, investigations, studies, and superintendence. Sufficient sampling, testing, and analysis shall be performed to optimize the required treatment and/or disposal operations and systems. There may be an initial meeting of all principal personnel involved in the development of the additional studies program. The purpose of the meeting will be to discuss objectives, resources, communication channels, personnel responsibilities, and orientation of the site, etc. An interim and final report documenting additional studies may be required. The interim report may be required to present the

results of the testing with the recommended treatment or disposal systems (including options). A review conference may be scheduled after the interim report has been reviewed by all interested parties. The final report will summarize the results of the studies and incorporate relevant test data.

6. Pre-final and Final Design

If required by U.S. EPA, the Respondent may submit the pre-final/final design documents in two parts. The first submission shall be at 95 percent completion of design (i.e., pre-final). After approval of the pre-final submission, Respondent shall execute the required revisions and submit the final documents 100 percent complete with reproducible drawings and specifications.

The pre-final design submittal shall consist of the Design Plans and Specifications, Operation and Maintenance Plan, Capital and Operating and Maintenance Cost Estimate, Project Schedule, Quality Assurance Plan, and Specifications for the Health and Safety Plan.

The final design submittal contents may include: the Final Design Plans and Specifications (100 percent complete), Respondent's Final Construction Cost Estimate, the final Operation and Maintenance Plan, Final Quality Assurance Plan, Final Project Schedule, and Final Health and Safety Plan specifications. The quality of the design documents should be such that the Respondent would be able to include them in a bid

package and invite contractors to submit bids for the construction project.

TASK 3: CORRECTIVE MEASURE CONSTRUCTION

Following U.S. EPA approval of the final design, Respondent shall develop and implement a construction quality assurance (CQA) program to ensure, with a reasonable degree of certainty, that the completed corrective measure(s) meets or exceeds associated design criteria, plans, and specifications. The CQA plan is a facility specific document which must be submitted to U.S. U.S. EPA for approval prior to the start of construction. As appropriate, the CQA plan may include the elements summarized below. Upon U.S. EPA approval of the CQA plan, the Respondent shall construct and implement the corrective measure in accordance with the approved design, schedule, and the CQA plan. The Respondent shall also implement the elements of the approved Operation and Maintenance plan.

A. Responsibility and Authority

The responsibility and authority of participating organizations (e.g., technical consultants, construction firms, etc.) and key personnel involved in the construction of the corrective measure(s) shall be described in the CQA plan. Respondent must identify a CQA officer and the necessary supporting inspection staff as appropriate.

B. Construction Quality Assurance Personnel Qualifications

The qualifications of the CQA officer and supporting inspection personnel shall be described in the CQA plan to

demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

C. Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the key components of the corrective measure(s) shall be summarized in the CQA plan. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with applicable environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. The inspection should also ensure compliance with applicable health and safety procedures. In addition to oversight inspections, and as required by U.S. EPA, the Respondent may conduct the following activities.

1. A pre-construction Inspection and Meeting to:

   a. Review methods for documenting and reporting inspection data;

   b. Review methods for distributing and storing documents and reports;

   c. Review work area security and safety protocol;

   d. Discuss any appropriate modifications of the construction quality assurance plan to ensure that site-specific considerations are addressed; and

e. Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations. The pre-construction inspection and meeting shall be documented by a designated person and minutes should be transmitted to all parties.

2. Pre-final Inspection

Upon preliminary project completion, Respondent shall notify U.S. EPA for the purposes of conducting a pre-final inspection. The pre-final inspection will consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and the U.S. EPA approved corrective measure(s). Any outstanding construction items discovered during the inspection will be identified and noted. If required by U.S. EPA, treatment equipment will be operationally tested by Respondent. Respondent will certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. A pre-final inspection report may be required to summarize the outstanding construction items, actions required to resolve items, completion date for these items, and date for final inspection.

3. Final Inspection

Upon completion of any outstanding construction items, Respondent shall notify U.S. EPA for the purpose of conducting a

final inspection. The final inspection will consist of a walk-through inspection of the project site. The pre-final inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the pre-final inspection. Confirmation shall be made that outstanding items have been resolved.

D. Sampling Requirements

The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specifications should be presented in the CQA plan.

E. Documentation

Reporting requirements for CQA activities shall be described in detail in the CQA plan. As deemed appropriate by U.S. EPA, the CQA plan may include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records also should be presented in the CQA plan.

TASK 4: REPORTS

Respondent shall prepare plans, specifications, and reports as set forth in Tasks 1 through 3 to document the design, construction, operation, maintenance, and monitoring of the corrective measure. The documentation may include, but not be limited to, the following:

A. Progress

Respondent shall provide U.S. EPA and Ecology with progress reports during the design and construction phases, and for operation and maintenance activities: The submittal schedule of the progress reports shall be determined by U.S. EPA and the Respondent. As appropriate, the contents of the progress reports may include current status items such as:

1. A description and estimate of the percentage of the CMI completed;
2. Summaries of all findings;
3. Summaries of all changes in the CMI during the reporting period;
4. Summaries of all contacts with representatives of the local community, public interest groups or state government during the reporting period;
5. Summaries of all problems or potential problems encountered during the reporting period;
6. Actions being taken to rectify problems;
7. Changes in personnel during the reporting period;
8. Projected work for the next reporting period; and
9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Draft

1. Respondent shall submit a draft Corrective Measure Implementation Plan as outlined in Task 1.
2. Respondent shall submit draft Construction Plans and Specifications, Design Reports, Cost Estimates, Schedules,

Operation and Maintenance plans, and Study Reports as outlined in Task 2.

3. Respondent shall submit a draft Construction Quality Assurance Program Plan and Documentation as outlined in Task 2.

C. Final

Respondent shall finalize the Corrective Measure Implementation Plan, Construction Plans and Specifications, Design Reports, Cost Estimates, Project Schedule, Operation and Maintenance Plan, Study Reports, Construction Quality Assurance Program Plan/Documentation, and the Corrective Measure Implementation Report incorporating comments received on draft submissions.

1. At the "completion" of the construction of the project, Respondent shall submit a Corrective Measure Implementation Report to U.S. EPA and Ecology. The Report shall document that the project is consistent with the design specifications, and that the corrective measure is performing adequately. The Report shall include, but not be limited to, some or all of the following elements as deemed necessary by U.S. EPA:

a. Synopsis of the corrective measure(s) and certification of the design and construction;

b. Explanation of any modifications to the plans and why these were necessary for the project;

c. Listing of the criteria, established before the corrective measure was initiated, for judging the functioning of

the corrective measure and also explaining any modification to these criteria;

d. Results of Facility monitoring, indicating that the corrective measure will meet or exceed the performance criteria; and

e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility.

This report should include all of the inspection summary reports, inspection data sheets, problem identification and corrective measure reports, photographic reporting data sheets, design engineers' acceptance reports, deviations from design and material specification (with justifying documentation), and as-built drawings.